Avid® AirSpeed®

Installation and User's Guide

Avid

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Using This Guide

Congratulations on your purchase of an Avid® AirSpeed® multichannel media server. You can use your AirSpeed to capture and output broadcast-quality media.

Symbols and Conventions

Avid documentation uses the following symbols and conventions:

Symbol or Convention	Meaning or Action
	A note provides important related information, reminders, recommendations, and strong suggestions.
	A caution means that a specific action you take could cause harm to your computer or cause you to lose data.
	A warning describes an action that could cause you physical harm. Follow the guidelines in this document or on the unit itself when handling electrical equipment.
>	This symbol indicates menu commands (and subcommands) in the order you select them. For example, File > Import means to open the File menu and then select the Import command.
▶	This symbol indicates a single-step procedure. Multiple arrows in a list indicate that you perform one of the actions listed.
Italic font	Italic font is used to emphasize certain words and to indicate variables.
`Courier Bold font`	Courier Bold font identifies text that you type.
Ctrl+*key* or *mouse action*	Press and hold the first key while you press the last key or perform the mouse action. For example, Ctrl+drag.

If You Need Help

If you are having trouble using AirSpeed:

1. Retry the action, carefully following the instructions given for that task in this guide. It is especially important to check each step of your workflow.
2. Check for the latest information that might have become available after the documentation was published:
   - If the latest information for your Avid product is provided as printed release notes, they ship with your application and are also available online.
   - If the latest information for your Avid product is provided as a ReadMe file, it is supplied in your Avid application folder as a PDF document (ReadMe.pdf) and is also available online.

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Chapter 1
AirSpeed Overview

This chapter provides background information about the AirSpeed media server. The following topics are discussed:

- Design
- DNxchange HD Option
- Hardware and Software Requirements
- Software Overview
- Front and Rear Panels

AirSpeed is a digital recorder or playback device designed to work seamlessly in Avid Unity environments (Avid Unity ISIS, Avid Unity MediaNetwork, and LANshare). AirSpeed allows you to capture incoming media directly into storage allocation groups (called workspaces) or play out media to air. Previously, Avid editing systems were used to capture the media, preventing the Avid editor from editing. Now media can be captured directly into Avid Unity workspaces unattended, freeing the Avid editing system for editing. Use the Avid editing system to edit the captured media into sequences and send the sequence back to the AirSpeed for playout. Up to five AirSpeeds together can be grouped to form a Studio.

Design

AirSpeed is designed for ease of use. Once the AirSpeed is configured, this network media server captures one stream of video and up to eight channels of audio to a preselected Avid Unity workspace. The video format you select in the AirSpeed should be compatible with the editing systems at your site. The captured material is made available to Avid editing systems that use media files compliant with Open Media Format (OMF)® or Material Exchange Format (MXF).

The AirSpeed is also a two-channel playout server. Select the AirSpeed's host name in the Send To Playback list on the Avid editing system and you can transfer a sequence to the AirSpeed server. Then use AirSpeed CountDown™ or Avid iNEWS® ControlAir™ to manage the playout of the sequence. You can group from two to five AirSpeed servers as a

Studio by following an AirSpeed host naming method. Send a sequence to the Studio and all the AirSpeeds in that Studio have the capability to playout the sequence. For information on the Studio concept and configuration, see “AirSpeed Studio and Playout” on page 119.

There are two functionally equivalent AirSpeed chassis. The front panel on both chassis are exactly the same but the connectors on the rear panel are in different locations. This document includes information on the currently shipping chassis (0010-07109-xx). To view the connector layout, see “Chassis 0010-07109-xx” on page 135.

You can set up and configure the AirSpeed using the user interface (UI) displayed on the built-in front panel monitor as well as remote applications, such as the Virtual Network Computing (VNC) application, Avid Pilot, and Avid FlightPlan. For more information on VNC see, “Virtual Network Computing” on page 131.

Media that you previously captured plays back in the UI monitor on the front of the AirSpeed as well as through the connections on the back of the AirSpeed. You can play back two streams of video at the same time. Use the UI playback buttons to select the video stream you want to view. For more information, see “UI and Playback Monitor” on page 29.

The Record and Stop buttons, located on the front panel of the AirSpeed, allow you to initiate and terminate the capture of material. In addition to these front panel buttons, you can control and capture material using Avid CaptureManager™ through a network interface. You can control the AirSpeed through serial or Ethernet connections.

If Avid Unity becomes unavailable, AirSpeed captures media to the internal drives until Avid Unity becomes available or the internal drives are full.

Hardware and Software Requirements

Your AirSpeed system requires specific Avid components and software versions; see the *AirSpeed ReadMe* included with your release for the qualified versions. The following Avid products are required:

- Avid Unity ISIS, Avid Unity MediaNetwork, or Avid Unity LANshare EX
- Avid Unity MediaManager
- Avid NewsCutter®, Avid NewsCutter XP, or Avid Media Composer® editing system.
- Avid PortServer Pro II or LANshare EX based on the Intel® Server Chassis SR2200, SR2400, or newer platform

The AirSpeed connects to an Avid Unity PortServer Pro through an Ethernet network switch.

- A network Domain Name System (DNS) server (recommended in the Avid Unity MediaNetwork environment, required in the Avid Unity ISIS environment)

If your Avid Unity environment does not have a network DNS server, instructions for creating one can be found on the Avid Knowledge Base. Go to www.avid.com.

Optional Avid applications and hardware include:

- Avid Unity TransferManager
- Avid Media Browse
- Avid iNEWS ControlAir
- Avid AirSpeed FlightPlan
- Avid AirSpeed Pilot
- Avid AirSpeed CountDown
- Avid DNxchange (see "DNxchange HD Option" on page 35)

Software Installation

The AirSpeed software resides on the system's disk drives. The software comes preinstalled. Future releases and updates require you to load the software on your Avid Unity MediaManager server where the AirSpeed can access the new or old versions. AirSpeed software is installed using the Setup > Software tab in the AirSpeed UI. For more information, see "Software Tab" on page 95.

Synchronization

When AirSpeed is capturing media, the sync is locked to the input signal. During playback, the outgoing media should be locked to the house reference signal provided on the Reference In connector on the rear of the AirSpeed. For information on video reference output and configuration, see "System Config Tab" on page 78.

Ethernet Connections

AirSpeed systems have an Ethernet connection used to control, configure, capture media to, or play out from, Avid Unity. For more information see "Control Connectors" on page 35.

Each AirSpeed needs its own IP address. The AirSpeed system operates as a PortServer Pro client to the Avid Unity storage area network (SAN).

AirSpeed establishes a connection with Avid Unity MediaManager, via an Ethernet connection, to check in project information and other metadata associated with the captured material. This process occurs at the start of capturing, during chunking, and when capture is terminated.

Networking

AirSpeed connects to the Avid Unity network with a unique name and IP address. Avid Unity identifies each AirSpeed using either the AirSpeed name or the IP address. AirSpeed operates as an attached Avid PortServer Pro or Avid LANshare EX Ethernet client.

PortServer Pro Connection

The AirSpeed software contains Avid Unity client code that provides the appropriate file and directory access to the storage area network. Avid has qualified AirSpeed support on the PortServer Pro based on the SR2200 and newer platforms.

The PortServer Pro based on the Intel ISP2150 Internet Server platform is not qualified to support AirSpeed.

AirSpeed uses an Ethernet client license in the Avid Unity workgroup environment and appears in the PortServer Pro Status Viewer. You do not have to purchase an additional license for the AirSpeed seat. Contact your Avid representative about updating your Avid Unity dongle to add AirSpeed Ethernet client licenses at no charge.

MediaManager Client

AirSpeed sends metadata to the Avid Unity MediaManager server during check-ins and when capture is terminated. The Avid Unity MediaManager client generates and stores an OMF or AAF clip media file on the Avid Unity.

Captured Material Exchange Format (MXF) media is stored in the workspace as Advanced Authoring Format (AAF). For more information on MXF, see "Media Formats and Files" on page 22.

Network Time Protocol

AirSpeed supports the use of a Network Time Protocol (NTP) server. By entering the IP address of your NTP server on the network, the AirSpeed gradually synchronizes to the network time. The date and time in AirSpeed operating system is corrected to match the NTP server. For information on configuring the NTP server, see "Network Tab" on page 77.

Internal Storage

The AirSpeed is equipped with four internal SCSI drives. These drives are used as a buffer for incoming media and storing playback media. The AirSpeed is equipped with four internal drives. These internal drives are in a 4-way RAID 0 stripe.

Serial Control

For flexibility, the AirSpeed supports more than one control mechanism. The AirSpeed supports the standard Sony® BVW slave deck control operations and Video Disk Control Protocol (VDCP). These operations include capturing, playing, pausing, shuttling, and navigating to timecode. The serial control of the AirSpeed is through two standard 9-pin RS-422 interface connectors on the rear of the AirSpeed. For information on configuring the serial remote ports, see "Channels Tab" on page 85.

The following commands are implemented in Avid products as extensions to the Sony BVW protocol. These protocol extensions provide clip name processing support not covered under the Sony BVW specification.

The AirSpeed responds with an ACK upon successful completion of the commands listed in the following table. In the event of a transmission error, the AirSpeed responds with a NACK followed by a status byte.

Supported BVW Extensions

Extension	Description
Clip Loading Enabled	Clip loading is always enabled in AirSpeed.
Disable Clip Loading	The AirSpeed accepts the but does nothing in AirSpeed since clip loading is always enabled.
Clip Length Request	The AirSpeed returns the current Mark In and Mark Out set for currently loaded clip.
Clip Length Response	The AirSpeed returns the current Mark In and Mark Out set for currently loaded clip as in the Clip Length Request.
Set Clip Length	The AirSpeed sets the Mark In and Mark Out timecodes for currently active clip. It does not do any trimming or clip modification.
Find First Clip Request	The AirSpeed finds the first clip.
Find Next Clip Request	The AirSpeed finds the next clip.
Find Clip Response	The AirSpeed sends a response after finding the clip.
Load Clip	The AirSpeed implements a load clip command. (playback function)
New Clip	The AirSpeed implements a command to create a new clip. (capture function)
Delete Clip	The AirSpeed deletes the clip. If the clip is locked, the clip is not be deleted. *Issuing a BVW eject command causes the currently active clip to be unloaded.*

User Interface

The front panel of the AirSpeed unit provides a monitor that has the option to display the AirSpeed UI. The UI provides windows for capturing media, playing media, and configuring the AirSpeed. The AirSpeed UI is explained in "User Interface" on page 63. Also included on the front are buttons for capturing and marking media, indicators and controls for the audio, and a headphone jack. See "Front Panel Layout" on page 26.

Portions of the front panel are designed to resemble a standard deck control interface with the appropriate buttons for capturing, playing, pausing, and shuttling. Additional controls are provided for nonlinear deck navigation.

The AirSpeed UI provides you with the flexibility to tailor capture and playout settings. These settings include network and workgroup settings, audio and video formats, and interface operations.

You have the ability to instantly capture (crash record) to a predetermined workspace on Avid Unity by pressing the Record button.

Software Overview

The AirSpeed system software supports all networking and operational requirements of the AirSpeed.

Digital Input and Output Selection

The AirSpeed can capture and play back video from serial digital interface (SDI) connectors on the rear of the AirSpeed. Digital audio input and output connectors are also on the rear panel. Digital audio is available through the following AES/EBU BNC connections:

- SDI Inputs and outputs using 525 lines (NTSC) or 625 lines (PAL) of video with optional embedded 48 KHz 20-bit audio.
- Eight AES inputs (4 AES/EBU pairs), with 16 or 24-bit sampling at 48 KHz (Inputs 1/2, 3/4, 5/6, and 7/8)
- Eight AES outputs (4 AES/EBU pairs), with 16 or 24-bit sampling at 48 KHz (Outputs 1/2, 3/4, 5/6, and 7/8)

When no video signal is present, black is recorded.

Analog Output Selection

Analog video output is available through composite and component (Y, Pr/R, Pb/B) connectors. Eight analog audio outputs are available through an Avid supplied cable that connects to a 25-pin connector on the AirSpeed. The eight XLR connectors on the other end of the cable connect to the analog inputs of your audio device (see “Audio Cable” on page 49).

The audio and video analog outputs are intended for monitoring. If you want to integrate the media into analog devices, use professional digital-to-analog converters.

Supported Media Formats

The media files created by AirSpeed and stored on Avid Unity workspaces are OMF Version 1.0 and MXF compliant. The AirSpeed supports the following Avid media formats:

Supported Avid Media Formats

Media File Type	Supported Formats
Video (NTSC and PAL)	DV25 NTSC supports DVCPRO (DV25 411) PAL supports DVCPRO (DV25 411 and DV25 420) DV50 IMX 50 — MPEG 50 I-frame-only compression IMX 30 — MPEG 30 I-frame-only compression 1:1 (MXF only)
Optional Avid DNxchange (DNxHD)	1080 Interlaced 1080i/59.94 fields per second 1080i/50 fields per second 720 Progressive 720p/59.94 frames per second
Audio	WAVE — 48 kHz

Capture Mode

AirSpeed captures real-time events or media. Video and audio are captured through the SDI input and stored on an Avid Unity workspace. You can start a capture using the front panel operational controls or the Avid Pilot application.

The captured media is saved in chunks so that portions are available to edit while you are still capturing it. For more information, see “Chunking” on page 20.

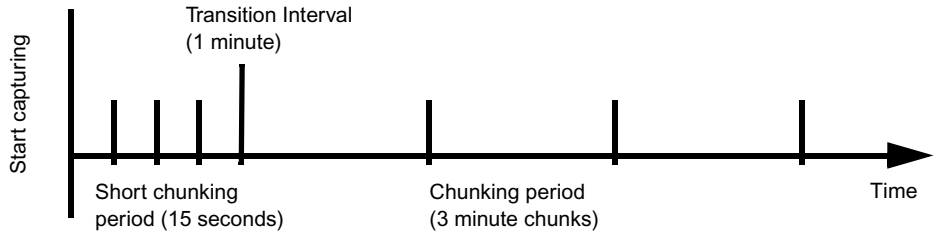
Chunking

When capturing, the media is sent in segments to a workspace, allowing workgroup users access to media that is currently being captured. AirSpeed refers to this capture process as chunking (also called Shared Volume Segmentation). Chunking is supported for both audio and video media.

You can set the length of the chunk, so that media is available shortly after capturing has started. At each chunk interval, more media is available, adding to your previous media. The AirSpeed supports chunking by creating clips of the material at a predetermined duration times and by periodically checking in captured material through the Avid Unity MediaManager client interface.

AirSpeed captures short chunks of media up to a transition time, then from the transition time forward, media is captured at your selected Chunking Period. For example, if the Chunking Period is set to 3 minutes, the Transition Interval to 1 minute and the Short Chunking period to 15 seconds, media checks in at 15, 30, 45, 60, 240, 420 seconds, etc. See the following illustration.

AirSpeed Chunking Model



In the AirSpeed workflow, even though MXF media is streaming to Avid Unity, metadata becomes available according to the Channel tab chunking settings. MXF media follows the same chunking model as the OMF media. To have access to the captured MXF media as soon as possible, set your Short Chunking Period to the minimum value of 15 seconds and both the Transitional Interval and Chunking Period to 3 minutes.

Chunking values are set in the Setup > Channel tab of the AirSpeed UI. For chunking time constraints, see “Channels Tab” on page 85.

RetroLoop

RetroLoop™ provides the ability to capture material for a predetermined, user-selectable amount of time *before* an unknown event occurs. RetroLoop captures media continuously in a loop, using a predetermined amount of storage space. Start capturing media using the RetroLoop feature; when the event happens, start a normal capture and capture as much of the event as you want. The end result is a clip that contains material before and after the event.

For information about entering RetroLoop mode, see “RetroLoop Mode” on page 112.

You must initiate RetroLoop using the AirSpeed front panel.

Media Formats and Files

The AirSpeed creates media and metadata files in the OMFI or MXF MediaFiles directories on the target workspaces. If the system's unique MediaFiles directory is not present on the selected network media drive, the AirSpeed creates one. The AirSpeed also creates a subdirectory under the OMFI MediaFiles (for OMF) or Avid MediaFiles (for MXF) directory.

The AirSpeed does not perform bin management operations. Bin entries for AirSpeed media are generated by the MediaManager server as the material is checked in.

The media format (OMF or MXF) that is captured depends on the workgroup environment of your MediaManager. If you want to capture MFX media, the MediaManager needs to be set to AAF in the Data Format menu in the MediaManager System Setup window. If you want to capture OMF media, select OMF in the MediaManager System Setup window. For details on configuring your MediaManager, see the Avid Unity MediaManager documentation. To change your AirSpeed between capturing OMF and MXF media, enter the name of the MediaManager that is configured for the media environment you want. Use the Send tab to change the MediaManager (see "Send Tab" on page 98).

When the MediaManager workgroup is set to AAF mode, all new media checked into the workgroup is in MXF format with AAF metadata. All editors and applications included in the MXF/AAF workgroup must support the ability to read and write MXF media and AAF metadata.

Workspaces must already be created in Avid Unity in order to enter the workspace name during the AirSpeed setup (see "Destination Template" on page 92). AirSpeed creates new projects, bins, and catalogs if the names in the configuration do not already exist.

OMF Files

Open Media Format (OMF) was developed by Avid Technology, Inc. and many industry and standards partners for the interchange of digital media data between platforms and applications.

OMF Interchange (OMFI) is a platform-independent file format that stores both the digital media (video, audio, graphics, animation) and the information describing how the media is edited together to form a final sequence. This editing information, called a composition, is the OMFI representation of the sequence created in Avid editing applications.

Any other program that supports OMFI can read OMFI files, even if the program resides on a different computer platform. As a result, with OMFI you can transfer files between different applications on different platforms without worrying about cross-platform translations.

MXF Files

The Material Exchange Format (MXF) is a format developed by the Professional MPEG Forum in association with organizations such as the SMPTE, The European Broadcasting Union (EBU) and the AAF Association.

Material Exchange Format is a wrapper or container format which encapsulates media and rich production metadata into a single file, which is useful for media storage and exchange. It is an open technology that can be implemented by any manufacturer.

MXF has been designed to be flexible enough for use in all stages of content creation, from acquisition, to authoring, to distribution.The primary benefit of MXF is that it provides greater workflow efficiency by preserving useful metadata as media files make their way through the content creation process.The MXF format is independent of the type of content that it contains, so an MXF file can contain video and/or audio at any resolution or compression. In many instances, MXF files encapsulate media that is already formatted to one of the existing industry standards.

MXF allows for easy exchange of material between file servers, tape streamers and digital archives. MXF is an ideal interchange format to enable workflow efficiencies in news broadcasting, post production, asset management, and archiving applications.

Media Destination Selection

The AirSpeed remembers the last storage destination set. Whether you initiate the capture by manually pressing the front panel Capture button or by remotely controlling the capturing, media is stored to the last selected Avid Unity network workspace. This feature allows you to crash record using the front panel Record button for quick captures.

Captured media is first stored on the internal drives of the AirSpeed and then copied to the selected Avid Unity workspace. To avoid reaching the internal drive's maximum storage capacity, AirSpeed can be configured to automatically delete the media that has been saved to a workspace. The Auto Delete setting in the Setup > System Config tab controls when to delete the media and how much media to delete. For more information on setting the Auto Delete, see "System Config Tab" on page 78. When the workspace is full, the AirSpeed continues to capture until the internal drives are filled. Once the internal drives are full, the AirSpeed stops capturing.

Playback

You can play back media previously captured by the AirSpeed. Two video streams of media can be played back at the same time. Pressing the Channel Select buttons allows you to switch between the two play channels. Navigation and playback of specific clips is initiated by the AirSpeed UI and controlled using the Operational Control buttons. Load a clip in the Play button of the AirSpeed UI and press the Play button on the front of the AirSpeed to view the clip in the UI and playback monitor.

When working with HD and 1:1 uncompressed media, only single channel play out is supported. You cannot select the second play out channel from the front panel or the AirSpeed Pilot application. The Channel Select button 2 on the front panel is disabled and the second play channel selection in AirSpeed Pilot is disabled.

Playout

Once you have edited your media, use the AirSpeed as a playout server. The AirSpeed allows you to play out two channels at the same time. To select the dual channel control options, see "Channels Tab" on page 85. Media sent to the AirSpeed for playout from an Avid Unity client can be controlled using the Avid AirSpeed CountDown application. In an Avid iNEWS environment, use the Avid iNEWS ControlAir application. For information on controlling clips on the AirSpeed, see the *Avid AirSpeed CountDown User's Guide* or the *Avid iNEWS ControlAir Device Manager Guide*.

Before you can send your sequence to the AirSpeed from an Avid editing system, you must add the AirSpeed to your Send To Playback list in the Avid editing application. Adding an AirSpeed to the Send to Playback list is done by adding the AirSpeed Host Name to the TMClient.ini tab of the Transfer settings.

To send a sequence from an Avid editing system to playout:

1. Add the AirSpeed Host Name to the TMClient.ini tab in the Transfer settings. This process is described in "Adding the Studio to Your WorkGroup" on page 120.
2. Connect to the AirSpeed by selecting Transfer > Reconnect to Server. This process is described in "Connect to Playout Server or Studio" on page 122.
3. Send a sequence to playout by doing one of the following:
   - Right-click on the selected sequence and select Send To Playback > *AirSpeedname*.
   - Highlight the sequence in your bin and select Transfer > Send To Playback > *AirSpeedname*.
4. (Optional) Monitor the transfer status by selecting Transfer > Status Window (see "Transfer Status Window" on page 124).

Do not delete the sequence or source media off of the Avid Unity workspace until you are sure the transfers to the AirSpeed or Studio are complete.

Studio Playout

An Avid AirSpeed Studio consists of two to five AirSpeeds grouped together using the network host names of the AirSpeed. When an Avid editing system sends a sequence to the Studio, any AirSpeed member of the Studio can play out the sequence. If one or more AirSpeeds in the Studio are offline, any other AirSpeed still online in the Studio can perform the playout.

For detailed information on the Studio concept, configuration, and using the Studio, see Chapter 6.

Play While Transferring

Play while transferring (PWT) is a feature that allows you to begin playing out media from the AirSpeed as soon as 5 seconds of media has been transferred. You do not need to wait for the transfer from the Avid editing system to finish. When PWT is not used, the media is not available until the media is completely transferred. The PWT option is selected in the Avid editing application when a clip is sent to playback.

The PWT feature is designed for time-sensitive playout needs. It is recommended that you do not send *all* your playout media to the AirSpeed using the PWT option.

Closed Caption

Closed caption information is captured and supported on playout. This information is hidden in the video signal, invisible without a decoder. Closed captions are stored in line 21 of the vertical blanking interval (VBI) for NTSC. When the closed caption option is selected, closed caption data is preserved. If deselected, this closed caption data line is left blank and can be used for other data. To set the closed caption option, see the “System Config Tab” on page 78.

Closed captioning is not displayed in the AirSpeed UI and playback monitor. To view closed captions, connect a television that supports closed captioning decoding to the MON connector on the back of the AirSpeed. Make sure that closed captions are enabled on the television.

Front and Rear Panels

AirSpeed uses industry-standard video and audio input and output connections in addition to network and control connections. The AirSpeed is designed for a 19-inch (483-mm) rack occupying three rack units (3U). For information on installing the AirSpeed into a rack, see "Installing AirSpeed in a Rack" on page 39.

You can manually configure your AirSpeed by using the UI and playback monitor. "User Interface" on page 63 lists the tab structure of the AirSpeed UI as seen in the UI playback monitor.

Avid recommends using the Virtual Network Computing (VNC) application to configure the AirSpeed when access to the AirSpeed is not available or when a keyboard and mouse are not attached. For more information see, "Virtual Network Computing" on page 131.

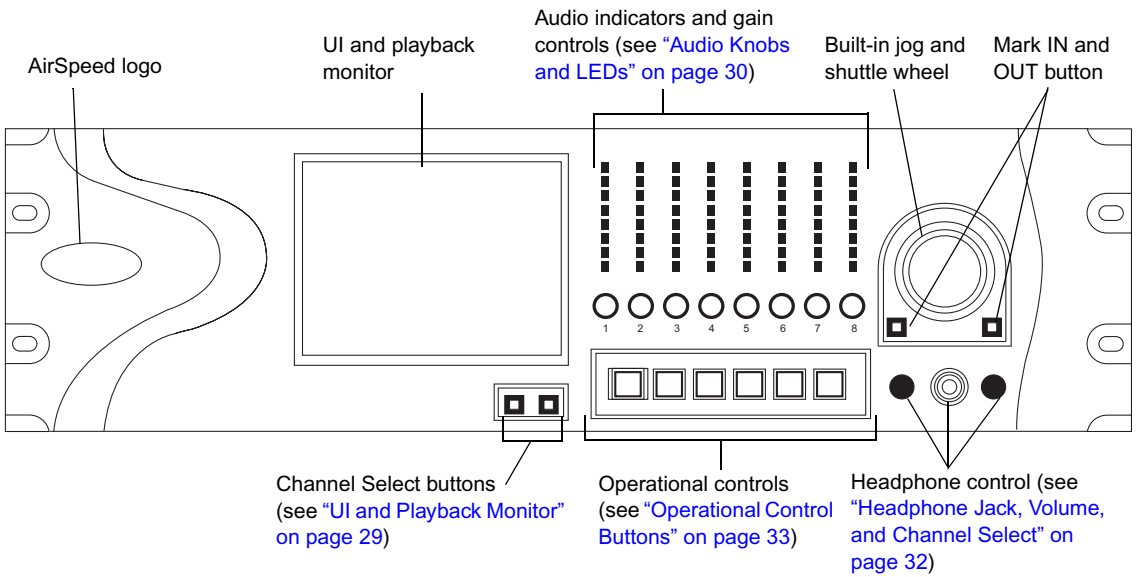
The AirSpeed is available in two models; one with a front panel monitor and controls, and one with a blank front panel that can only be configured and controlled with remote network applications. The following sections describe the differences in the two front panels:

- Front Panel Controls
- Panelless Model

Front Panel Controls

The following figure shows the controls on the front of the AirSpeed.

Front Panel Layout


AirSpeed logo
UI and playback monitor
Audio indicators and gain controls (see "Audio Knobs and LEDs" on page 30)
Built-in jog and shuttle wheel
Mark IN and OUT button
1 2 3 4 5 6 7 8
Channel Select buttons (see "UI and Playback Monitor" on page 29)
Operational controls (see "Operational Control Buttons" on page 33)
Headphone control (see "Headphone Jack, Volume, and Channel Select" on page 32)

You can lock the front panel controls and buttons disabling the Front Panel Control option in the Setup > System Config tab in the AirSpeed UI; see “System Config Tab” on page 78. When you disable the front panel, capture and playback functions are done through remote applications. The following table describes the front panel controls.

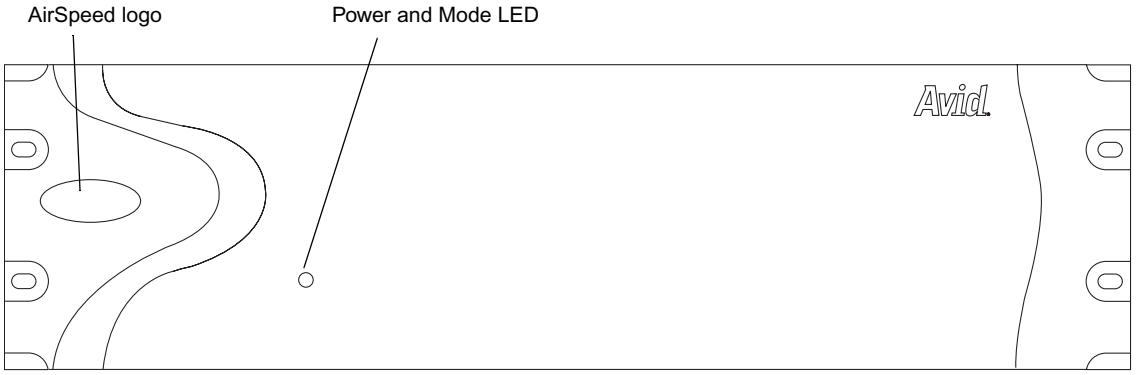
Front Panel Controls

Control	Description
UI and playback monitor	The UI and playback monitor displays the UI or video during playback and captures. Configure or change settings in the UI using a keyboard and mouse connected to the PS/2 port.
Channel Select buttons	The channel select buttons are used to switch between the two play channels. Channel one is the record channel as well as play channel one. Both channel one and channel two can be playing video at the same time. Switch between the two channels by pushing either Channel Select button. For more information on the buttons, see “UI and Playback Monitor” on page 29
Manual audio gain controls	The audio gain controls allow you to adjust the gain of the audio outputs. Audio levels are displayed on the front panel LEDs. For more information on the knobs and LEDs, see “Audio Knobs and LEDs” on page 30.
Operational controls	Six buttons to the lower right of the UI and playback monitor match the buttons on a videotape recorder (VTR). For more information on the buttons, see “Operational Control Buttons” on page 33.
Mark IN and OUT	Mark IN and OUT are set on-the-fly by pressing the IN or OUT buttons while capturing. When you press IN again, the first mark IN point moves. Pressing OUT again moves the mark OUT point. You cannot mark more than one mark IN and one mark OUT point per clip. *You can have an IN point without having an OUT point.*
Headphone jack volume control and channel select	Plug a headphone set into the headphone jack and use the knob above the jack to adjust the volume. The headphone jack is a stereo output. *You can only hear two audio channels at a time through the headphone jack. Select the audio channels you want to hear using the audio channel select knob (see “Audio Knobs and LEDs” on page 30.*

Panelless Model

The following figure shows the front of the panelless AirSpeed. All configuration, capture, and playback functions are done through remote applications.

Panelless Front Panel



There are two AirSpeed functions that cannot be performed with the panelless model that are available on the full panel model. The two functions that cannot be performed on the panelless model are:

- Retroloop
- Locators

All other front panel functions are performed in the following software:

- Virtual Network Computing (VNC) — used to access the AirSpeed UI and configure the AirSpeed. For more information see, "Virtual Network Computing" on page 131.
- Avid AirSpeed Pilot — used to capture media and play it back. The application is also used to set the audio gain. The audio gain controls only appear in the Pilot application when accessing an panelless AirSpeed. For more information see, the *Avid FlightPlan and Pilot User's Guide* or online Help.
- Avid AirSpeed FlightPlan — used to manage your captured media by moving, renaming, or deleting clips. For more information see, the *Avid FlightPlan and Pilot User's Guide* or online Help.

The LED on the front of the panelless system is a tri-colored LED that indicates when the AirSpeed is in the following modes:

Panelless LED Functions

LED State	Function
Constant Yellow	Indicates the AirSpeed is powered on and idle
Blink Red	Indicates an new clip has been created, and the AirSpeed is waiting to start capturing
Constant Red	Indicates the AirSpeed is capturing
Blink Green	Indicates a clip has been loaded, and the AirSpeed is ready to play out
Constant Green	Indicates the AirSpeed is playing out

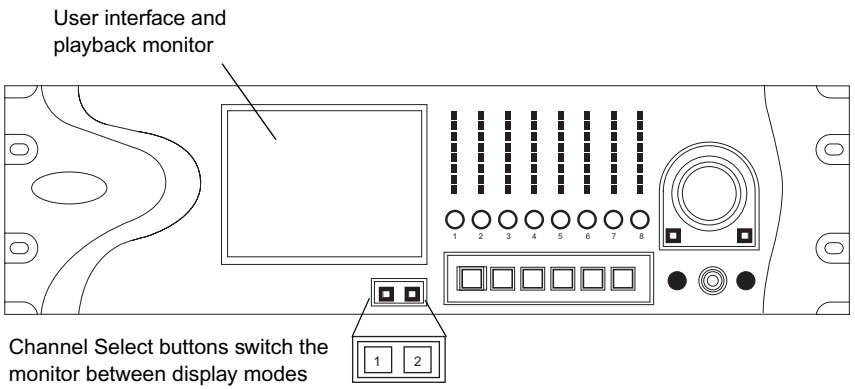
Visual Status Information

You can monitor a variety of status information using the UI and playback monitor, the LEDs, and the operational control buttons. Monitored system components are displayed on the Diagnostic button of the AirSpeed UI (see “Diagnostic Button” on page 73).

UI and Playback Monitor

The UI and playback monitor displays the AirSpeed UI configuration settings, the incoming video, or play out video. You select the display with the Channel Select buttons; what you see depends on if you are in the Capture or Play out mode. The setup and configuration settings are explained in “User Interface” on page 63 and “Configuring the AirSpeed” on page 75. The following figure identifies the monitor and buttons.

UI and Playback Monitor



Use the Channel Select buttons to switch between the Capture mode or the two Playout channels. You can either watch the video that is being captured or play back two channels of video that were just captured.

Each time you press the Channel Select buttons, they cycle through the following functions:

- Press Channel Select button 1
  - Capture mode (channel 1) — settings for capturing media
  - Play mode (channel 1) — settings for playout on channel 1
  - Video — view media that is being captured or playing on channel 1
- Press Channel Select button 2
  - Play (channel 2) — settings for playout on channel 2
  - Video — view media that is playing on channel 2

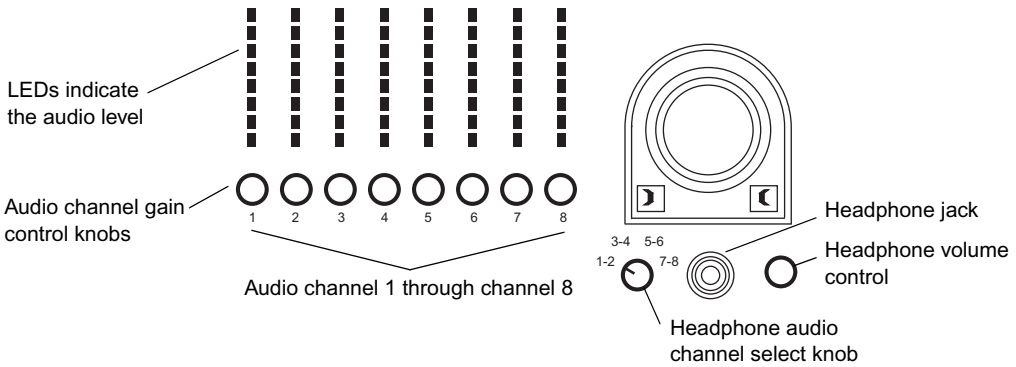
When capturing media, Channel Select button 2 has no function.

Audio Knobs and LEDs

The front panel provides audio LEDs and gain control knobs for each of the eight audio channels. The audio knobs are recessed under each LED row and extend out the front panel when pushed. Push the channel knob again to retract the knob to be flush with the front panel. Turn the knob to adjust the output gain when playing media. The LEDs above the knob provide a visual indication of the signal for each channel. Numbers under each knob indicate the audio channel it controls.

The following figure shows the eight knobs that control the audio channel gain and their LEDs. HeadPhone controls are also identified.

Audio Controls



The LEDs reflect the current audio capture level. Use the gain control knobs to manually adjust the audio gain during playout. Green and yellow LEDs help illustrate the audio levels.

You cannot adjust the gain of the audio being captured.

The audio LEDs on the front panel monitor audio display between –12 dB to –35 dB. The following table compares the audio range with the markings on the front panel.

Audio LEDs in Full Scale Digital

Stenciled Scale	Actual Value From Full Scale Digital
+3 dB	– 12 dB
+1 dB	– 14 dB
0 dB	– 15 dB
– 1 dB	– 16 dB
– 3 dB	– 18 dB
– 5 dB	– 20 dB
– 10 dB	– 25 dB
– 20 dB	– 35 dB

You use the eight audio gain controls when the AirSpeed is being configured, and not during a broadcast. Typically you calibrate the AirSpeed to house gains, although there might be other legitimate configurations.

To calibrate the AirSpeed audio for playout, press the audio gain control knob to extend it out of the front panel and allow it to be adjusted. Each of the eight audio output channels has a separate gain control.

Select the Play 1 channel by pressing the Channel Select button 1. Play a test tone clip and use the audio gain control knobs to adjust the audio gain outputs on the rear of the AirSpeed associated with that playout channel. The audio output channels map to the Play 1 and Play 2 channels as described the “Channels Tab” on page 85.

The audio output channels depend on which Channels are selected in the Setup > Channels > Audio Channel Selection During Playback setting. Audio could be set to 0, 4, or 8 audio channels. If Channel 1 is set to eight, all eight audio gain controls are associated with the Play 1 channel. If the Play 1 channel has four audio channels allocated to it, you can have the other four channels allocated to Play 2. The Audio Channel Selection During Playback setting maps which audio gain controls are associated with each Play channel.

Set the Audio Channel Selection During Playback setting so that all eight channels are allocated to Play 1. Make sure the test tone clip has audio on all the relevant channels (if the playback channel has all eight audio channels allocated to it, make sure you play a test clip with eight channels of audio). The LEDs give you feedback as to which audio channels have audio present. For more information on adjusting the audio gain with a scope, see "Adjusting the Audio Playout Gain" on page 61.

Play the test tone clip on the Play 1 channel and adjust the gains so that output audio on each channel is at the house levels. When you have finished setting the audio gain controls, push them back into the recessed position to prevent inadvertent changes. While recessed, they are flush with the front panel.

Changes to the gains happen in real time. As soon as you adjust the volume control, you see and hear the signal change.

Reallocate all eight audio channels to the Play 2 channel using the Setup > Channels > "Audio Channel Selection During Playback" settings. Select the Play 2 channel by pressing the Channel Select button 2. Play a test tone clip on Play 2 channel and repeat the adjustment process.

Audio Gain Precaution

If Channel Select button 1 is selected and you change audio gains on channels associated with the Play 2 channel, or if you have Channel Select button 2 selected and you change audio gains on channels associated with the Play 1 channel, the change does not occur until the next time you load a clip on that Play channel. Only adjust audio gains on the Play channels associated with the currently selected playback channel.

Headphone Jack, Volume, and Channel Select

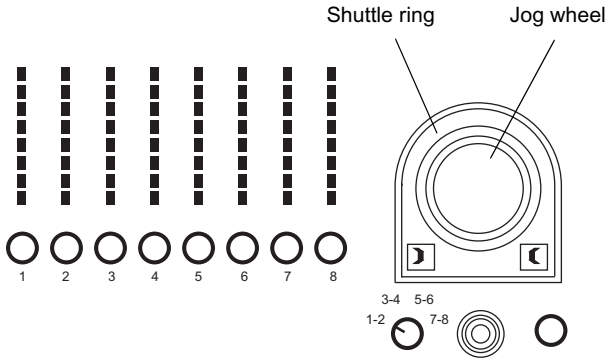
A stereo headphone jack is provided on the AirSpeed front panel. The jack provides output for two audio channels at a time. Select channels 1–2, 3–4, 5–6, or 7–8 using the audio channel select knob. Adjust the headphone volume using the headphone volume control. Controls are identified in "Audio Knobs and LEDs" on page 30.

Shuttle Ring and Jog Wheel

The Shuttle ring and Jog wheel on the front panel allow you to quickly search and scan captured clips while viewing them on the UI and playback monitor. Turning the outer Shuttle ring allows variable speed playback, both forward and backwards. The speed is related to the extent of rotation away from the starting position of the wheel. Rotate the ring clockwise for forward shuttle, rotate the ring counter-clockwise for reverse shuttle. The shuttle plays the video forward or backward up to 5 times the real time speed. The clip continues to move until the ring is released or returned to its center position.

The center wheel is the Jog wheel allowing you to view a clip frame-by-frame. The speed and direction is directly proportional to the speed and direction that the wheel is rotated. The following figure shows the Shuttle ring and Jog wheel.

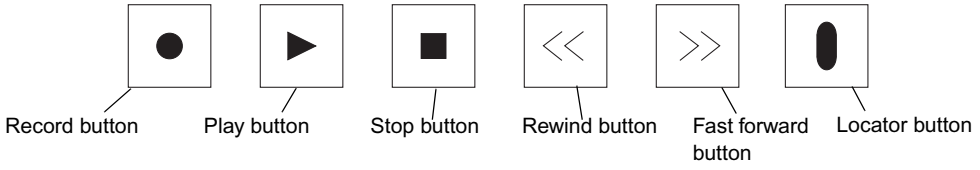
Shuttle Ring and Jog Wheel



Operational Control Buttons

The following figure shows the operational control buttons. These buttons have a backlight to help determine the capturing state of the AirSpeed. The following table lists the functions of these buttons; “User Interface” on page 63 lists all the front panel button functions.

Operational Control Buttons



The following table lists the functions of the buttons that light.

Operation Control Buttons

Button	Indicator and Condition
Record	Solid red when system is capturing.
Play	Plays out video from the AirSpeed. Two video clips can be played out; one clip on each channel.
Stop	Lit when system is paused.

Operation Control Buttons (Continued)

Button	Indicator and Condition
Rewind/Fast Forward	Lit when system is shuttling.
Locator	Mark frames where you want to identify later while editing the media. You can mark up to 8 frames per clip.

Rear Media Connections

The AirSpeed supports industry-standard inputs and outputs to provide flexibility for individual requirements. The following table lists the inputs and outputs on the AirSpeed. For details on each connector, see "Chassis 0010-07109-xx" on page 135.

Video and Audio Connectors

Connector	Description
Serial Digital Interface	1 serial digital interface (SDI) input (1 BNC) 2 SDI outputs (2 BNC)
Analog Reference In and Loop Out	1 reference input (1 BNC) 1 reference output (1 BNC)
Video Outputs	1 composite output with overlay for monitoring the source video (1 BNC) 1 composite output (1 BNC) 1 component output (rear panel, 3 BNC)
LTC In and Out	2 analog TC outputs (2 XLR) 1 analog TC input (1 XLR)
Audio Inputs	8 digital audio AES/EBU inputs (4BNC, software configurable)
Audio Outputs	8 digital audio AES/EBU outputs (4BNC, software configurable) 8 analog audio outputs (25-pin cable included)

Keyboard and Mouse

You need to provide your own PS/2 keyboard and mouse to navigate through the AirSpeed UI. The keyboard and mouse plug directly into the PS/2 connectors rear of the chassis. For more information, see "PS/2 Connections" on page 51.

Control Connectors

The following table lists the connections used for controlling the AirSpeed. For details on each connector, see “Chassis 0010-07109-xx” on page 135.

Control Connectors

Connector	Description
Ethernet	Gigabit (1000BASE-T) Ethernet data connection
Remote 1 and Remote 2	9-pin female RS-422 remote operational control connector

DNxchange HD Option

The Avid DNxchange™ is transcoder interface that converts high-definition (HD) media from HD-SDI devices to Avid DNxHD media encoded in a Serial Digital Transport Interface (SDTI) stream. The Avid DNxchange also transports of 8 channels of embedded audio, longitudinal timecode (LTC), and other ancillary data embedded in the HD SDI input stream. This device enables you to move HD media through your existing standard-definition (SD) serial digital interface (SDI) networks. This enables you to transport high quality HD compressed media greater distances than with HD-SDI.

When the Avid DNxchange is connected to the AirSpeed you can capture HD into your SD workgroup environment. The Avid DNxchange is a rack-mounted I/O device which can be populated with two transcoder channels. Each DNxchange channel can be configured as either an HD-to-SD transcoder (compression/capture) or as an SD-to-HD transcoder (decompression/play). For more information on features and connections, see the *Avid DNxchange Installation and User’s Guide*.

HD Video With AirSpeed

The process for monitoring HD media using the AirSpeed is different than the way SD media is monitored. The HD media is in an SDTI stream coming and going and from the DNxchange channels. The HD playback and captured media cannot be viewed from the input and output connections on the back of the AirSpeed or the AirSpeed UI and playback monitor on the front. The HD embedded data needs to be played out through a DNxchange channel to be decoded back into HD media. Although, Avid editing systems can view and edit the HD media in the Avid Unity environment.

When working with HD media, only single channel play out is supported. You cannot select the second play out channel from the front panel or the AirSpeed Pilot application. The Channel Select button 2 on the front panel is disabled and the second play channel selection in AirSpeed Pilot is disabled.

Monitoring HD Video During Capture

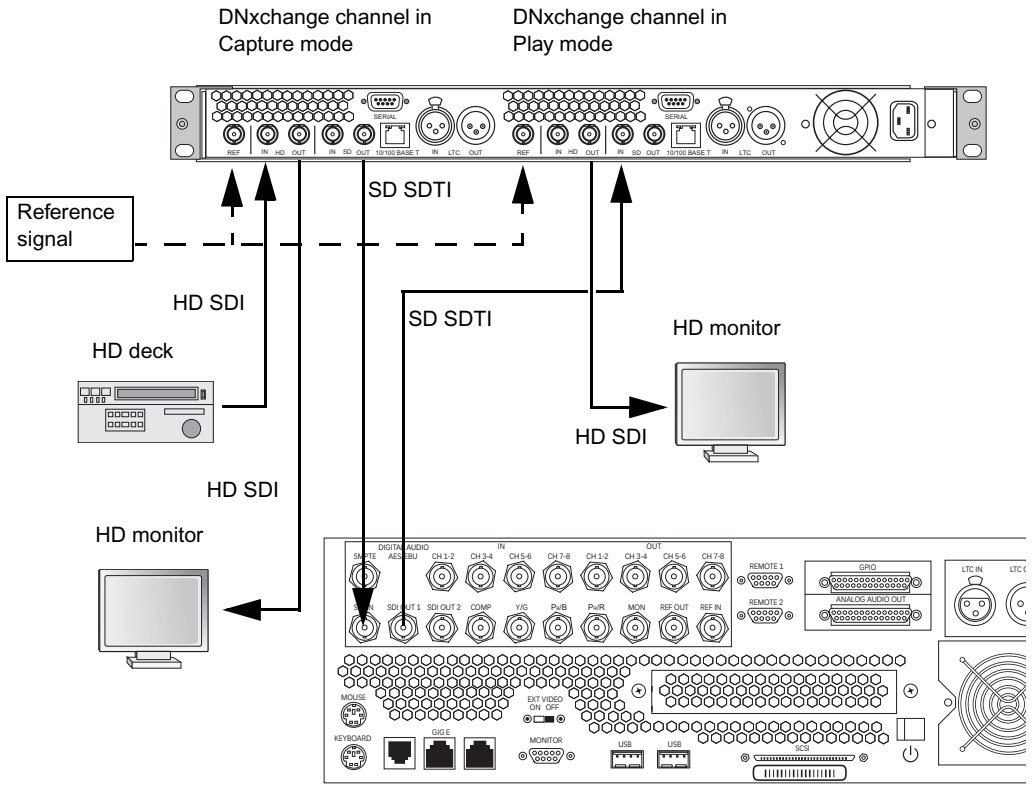
When capturing HD media you can monitor the captured HD media at the following two locations:

- The easiest way to view the HD media coming into the DNxchange is to connect an HD monitor to the HD Out connector on the same DNxchange channel that is doing the capturing. As the media is being captured through the HD In connector, the video (without audio and ancillary data) is looped back through to the HD Out connector.
- If you would rather see that the encoded HD media in the SD SDTI stream is being captured accurately, connect the SDI Out (either SDI OUT 1 or SDI OUT 2) on the AirSpeed to the SD In connector on a second DNxchange channel that is configured for Play mode. This output stream includes the video, embedded audio, and ancillary data.

You must provide a reference signal to both DNxchange channels and make sure the appropriate channels are configured for capturing or playing out.

Connect an HD monitor to the HD Out connector on the DNxchange play channel. As the media is being captured through the HD In connector and the SDTI stream sent to the AirSpeed it is looped back through to SDI Out connector. The SDTI stream is decoded back to HD media with the DNxchange play channel and can be seen on the HD Out connector of the DNxchange play channel. The HD output of the second channel lags behind the HD input of the first channel by 12 frames. The following figure provides a diagram showing both methods.

Cabling for Monitoring HD Video While Capturing



If you have several AirSpeeds capturing HD media, connect one of the SDI Out connectors from each AirSpeed to a router. Also connect the router to a DNxchange channel that is configured for Play mode. Use the HD Out of the DNxchange play channel to view the HD media on each AirSpeed by selecting the AirSpeed source to route to the DNxchange play channel.

Chapter 2
Installation

This chapter provides AirSpeed installation, connections, and system “power-up” instructions. The AirSpeed requirements in the Avid Unity workgroup environment are also listed.

You might want to configure the AirSpeed prior to rack mounting if the front panel access limited in your rack location.

Do not connect multiple AirSpeed servers to your Avid Unity environment until you have assigned a new unique IP address to each AirSpeed.

Installing AirSpeed in a Rack

The AirSpeed is designed for 19-inch (483-mm) rack enclosures and requires three EIA rack units (3U), or 5.25 inches (133.4-mm) of rack space. The rail kit installs into rails that are between 24 to 30 inches deep. AirSpeed provides rack nuts for those rack enclosures that do not have threaded holes. Rack-nut clips position the rack nuts at the holes of the rack and are used to secure the rack components in place.

The AirSpeed ships with slide rails, brackets, and rack-mount screws. When the inner slide rails are mounted to the AirSpeed and the outer slide rails are mounted to the rack, you can secure the AirSpeed in the rack so it doesn’t slide forward. If your rack has threaded holes, you might have to supply your own rack fasteners. If your rack does not have threaded holes, install the rack nuts included with the AirSpeed (see “Attaching the Outer Rails to the Rack” on page 43).

The UI and playback monitor provides optimum viewing when positioned at eye level and lower. If you are looking up at the UI and playback monitor, the clarity is impaired.

The AirSpeed is designed to be installed horizontally in a rack. Installing the AirSpeed on an angle or in a sloped console causes the internal drives to wear faster than the intended life of the drive.

To ensure the stability of the rack enclosure, start from the bottom when you install the rack components in the rack enclosure.

Rack-mount Requirements:

- Elevated Operating Ambient — If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment might be greater than room ambient. Therefore, consider installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
- Reduced Air Flow — Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

  AirSpeed airflow is from the front of the chassis enclosure to the rear. Make allowances for cooling air to be available to the front panel surface and no restrictions at the rear.
- Mechanical Loading — Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

  Make sure your rack enclosure is stable enough to prevent tipping over when one or more AirSpeed systems are extended on the sliding rails.
- Circuit Overloading — Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- Reliable Earthing — Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (for example, use of power strips).

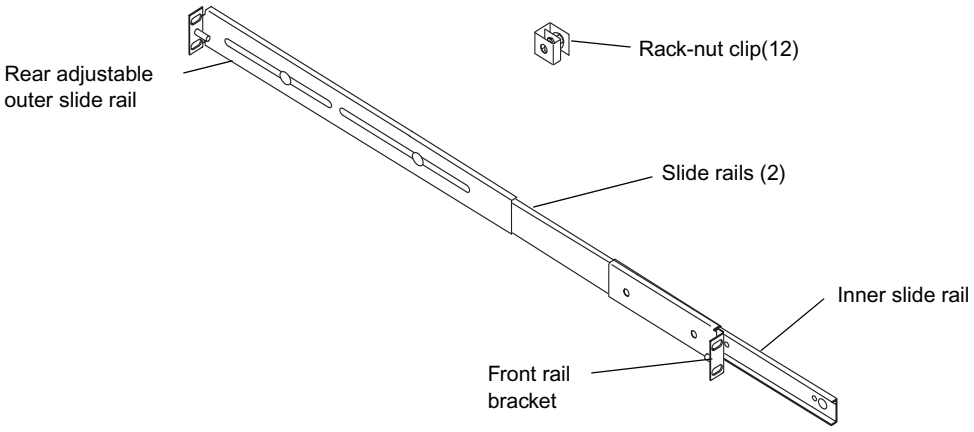
Checking the Contents of the Rack-Mount Kit

The rack-mount kit contains the following:

- 2 – rack-mounting adjustable slide rails
- Assorted screws and nuts
  - 12 – rack-nut clips
  - 10 – 8-32 x .25” pan-head screws (not shown)
  - 4 – 10-32 x .75” flat-head screws (not shown)
  - 4 – 10-32 x .75” truss-head screws (not shown)
  - 4 – 10-32 x .75” black screws with nylon washers (not shown)

Use your own rack hardware if your rack has threaded holes or unique fasteners.

Rack-Mount Kit Contents



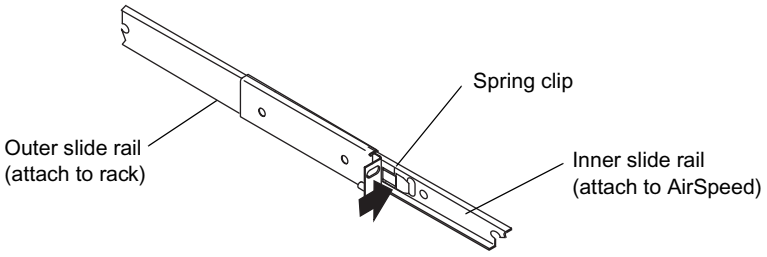
Separating the Slide Rails

You need to separate the slide rails and attach the inner “movable” section to the AirSpeed and the outer “fixed” section to the rack rails.

To separate the slide rails:

1. Slide the slide rail completely open.
2. Press the spring clip on the inside of the slide rail.
3. Pull and separate the two halves.
4. Repeat these steps to separate the second slide rail.

Separating the Slide Rails



Positioning the AirSpeed in the Rack

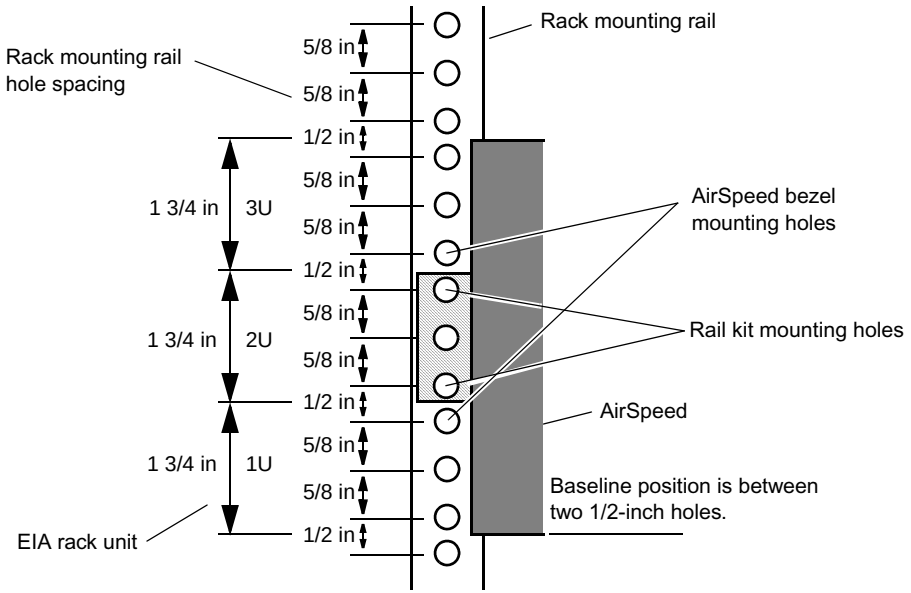
The following procedure helps you decide where to install the AirSpeed in the rack. If your rack enclosure does not have threaded holes, install the rack-nut clips included with the rack-mount kit where the slide rails and AirSpeed front panel secures to the rack enclosure. If your rack enclosure has threaded holes, do not attach the rack-nut clips.

To position the AirSpeed in the rack enclosure and attach the rack-nut clips:

1. Select a position in the rack where you can mount the AirSpeed at eye level (or lower). The AirSpeed needs to be positioned at the proper baseline position (see the following figure).

   If your rack enclosure has threaded holes, continue with "Attaching the Outer Rails to the Rack" on page 43.

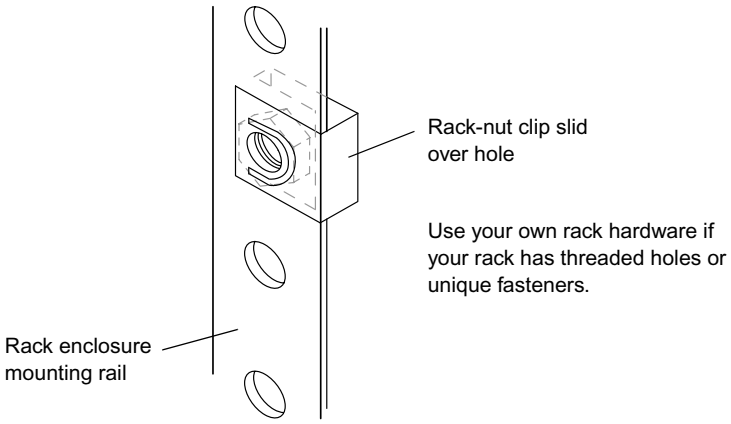
Positioning the AirSpeed



2. From the inside of the enclosure rail, slide the rack-nut clips over the holes where the AirSpeed rails and front panel will secure to the rack enclosure; see the following figure.

   Each front rack-mounting rail needs 4 rack-nut clips and 2 rack-nut clips for each rear mounting rail.

Attaching Rack Nuts onto the Rack Enclosure


Rack-nut clip slid over hole
Use your own rack hardware if your rack has threaded holes or unique fasteners.
Rack enclosure mounting rail

Attaching the Outer Rails to the Rack

After separating the slide rails as previously described (see “Separating the Slide Rails” on page 41), attach the outer slide rails to the rack.

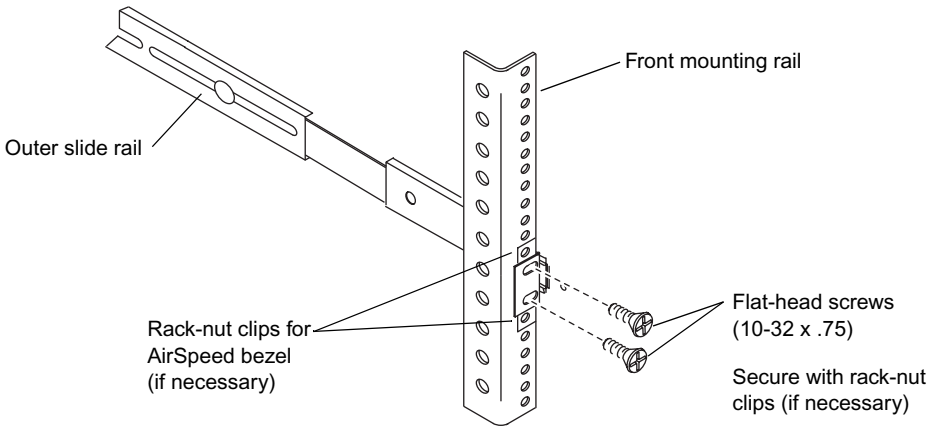
There is a post at each end of the slide rail bracket that allows you to hold the slide rail in position while putting in the screws.

To attach the bracket and rails:

1. Place one outer slide rail inside the rack mounting rails. The rail ends should be outside of the front and back mounting rail surfaces.
2. Attach the front of the outer slide rail to the front mounting rail with the two flat-head screws.

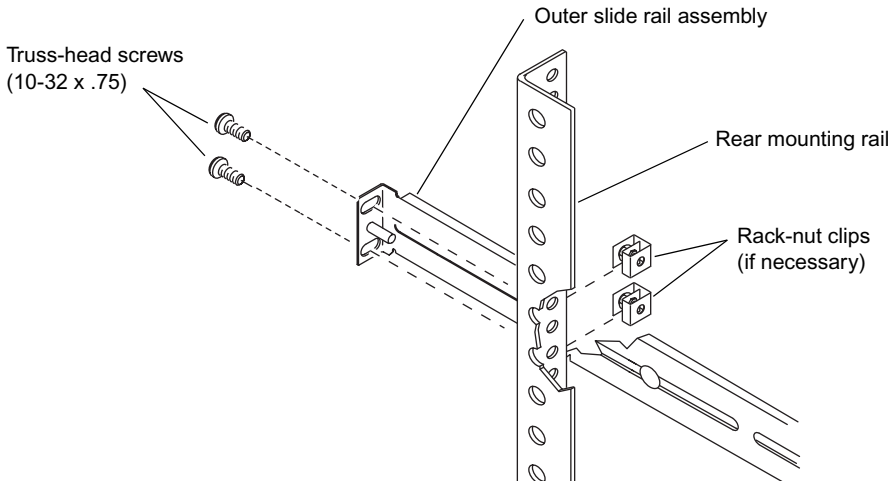
If you haven't already attached the rack-nut clips for the AirSpeed bezel (if necessary), place a rack-nut clip just above and below the holes used for the front slide rail. For more information, see "Positioning the AirSpeed in the Rack" on page 42.

Attaching the Outer Rail Assembly to the Front of the Rack



3. Attach the rear of the outer slide rail to the rear mounting rail with the two truss-head screws.

Attaching the Outer Rail Assembly to the Rear of the Rack and Adjusting the Support Rail



4. Repeat this procedure to attach the second outer slide rail on the other side of the rack.

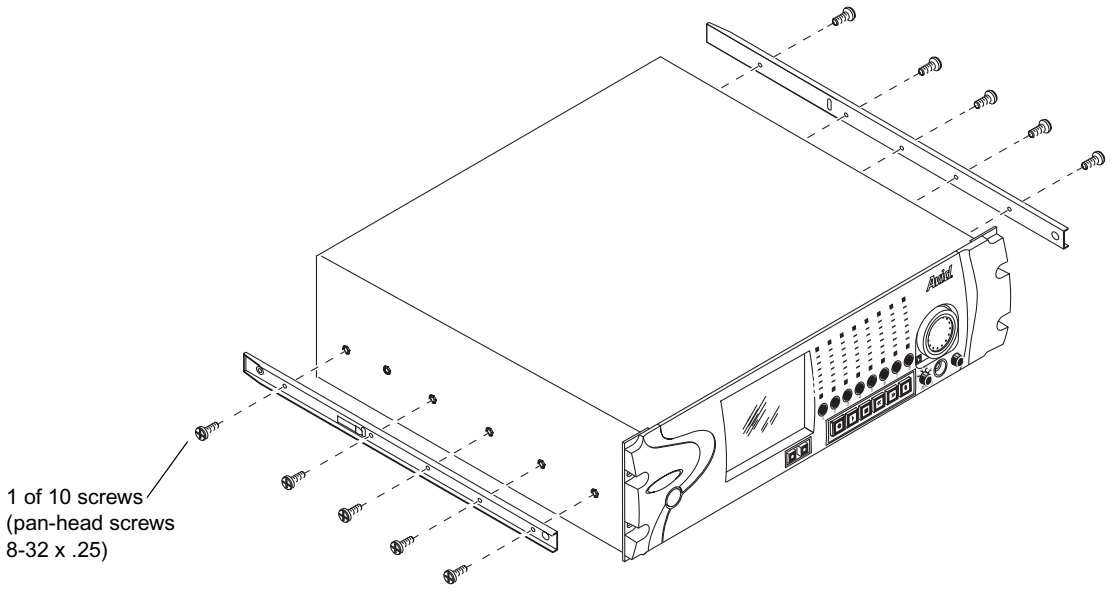
Attaching Inner Rails to the AirSpeed

After separating the slide rails as previously described (see “Separating the Slide Rails” on page 41), attach the inner slide rails to the AirSpeed.

To attach the inner slide rails:

1. Position the inner slide rail against the side of the AirSpeed so that the tapered end and release spring clip of the inner slide rail is toward the back of the unit.
2. Secure the inner slide rail to the AirSpeed enclosure with five pan-head screws.

Attaching the Inner Slide Rails



3. Repeat this procedure to attach the other inner slide rail on the other side of the AirSpeed.

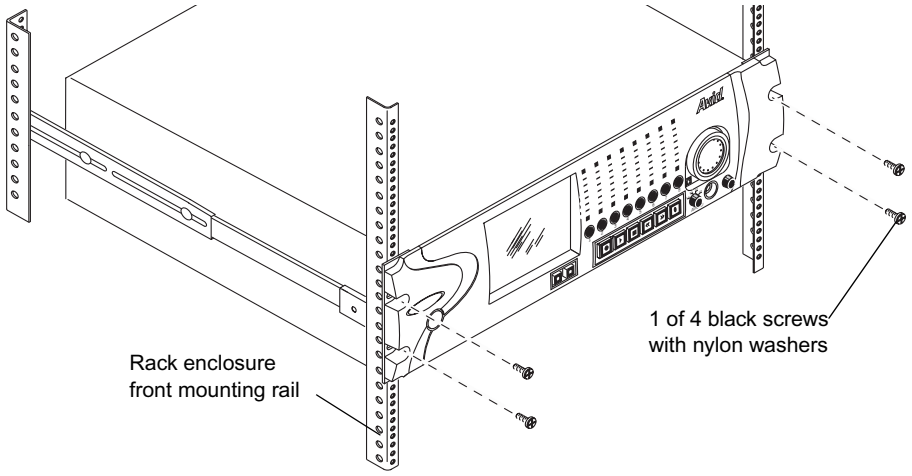
Securing the AirSpeed in a Rack

You should have someone helping you lift the AirSpeed while you are positioning it into the slide rails.

To secure the AirSpeed to the rack enclosure:

1. Lift and position the AirSpeed so that the inner slide rails attached to the sides of the AirSpeed align with the outer slide rails secured to the rack.
2. Push the front of the AirSpeed flush against the front mounting rail. Align the holes in the AirSpeed bezel with the holes in the front mounting rail (see the following figure).
3. From the front of the rack enclosure, insert the screws with nylon washers through the AirSpeed and front mounting rail, and tighten.

Front Panel Screws



Cabling

The following sections describe the cabling on the rear of the AirSpeed:

- SDI and Video Cables
- Audio Cable
- Timecode Cables
- Control and Communications Cables
- Power Cord

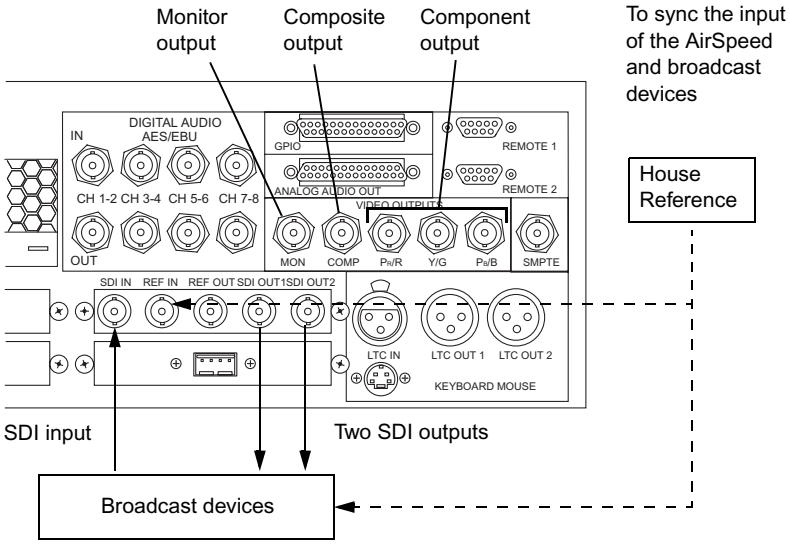
SDI and Video Cables

The SDI and Video connections are marked on the rear of the AirSpeed; the following procedure describes which connector to use. To find the exact location "Chassis 0010-07109-xx" on page 135.

To connect video cables on the chassis:

1. Ensure that you have the proper digital AES/EBU (75 ohm-rated) and SMPTE 259M serial digital interface coaxial cables available.

SDI, Reference, and Video Output Connections



2. Connect a composite video reference source (house reference, black burst) to the Ref input connector. If the AirSpeed is the last device in your reference loop, terminate the remaining Ref Out connector with a 75Ω terminator. If the AirSpeed is in the *middle* of your reference loop, connect the remaining Ref Out connector to the next device's reference input.
3. Connect the SDI input connector to your incoming digital signal. Two different SDI outputs are available for sending SDI signals out to your other devices.

For information on selecting the component video format, see "Channels Tab" on page 85.

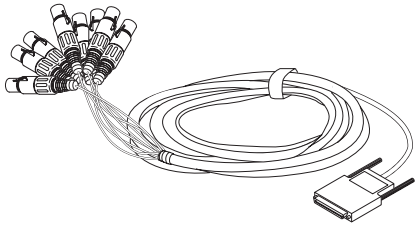
4. Connect the analog component video output connectors (Y, Pb, Pr) to your analog component video monitoring devices as required.
5. Connect the COMP connector (composite output) to a composite analog monitoring device if required.

6. Connect the MON connector (additional composite output) to an appropriate composite analog monitor.

Audio Cable

Avid provides an analog audio cable harness with the Avid AirSpeed. The cable uses a DB-25 connector on one end, and eight industry-standard XLR male audio connectors on the other end.

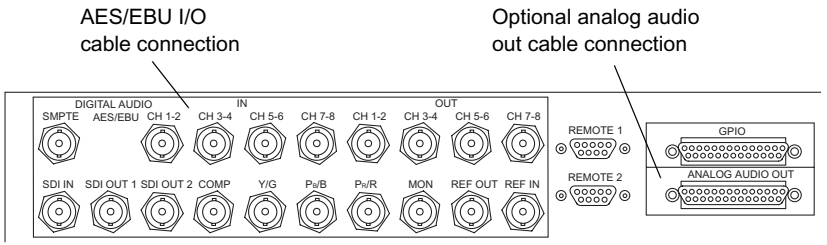
Analog Audio Output Cable



Avid analog audio cable provided with the AirSpeed

The connections between the AirSpeed and your source and destination equipment vary depending on the type of audio equipment you have. The following figure identifies the connections for your audio equipment. See “Chassis 0010-07109-xx” on page 135 for exact connector locations.

Audio Input and Output Connections



To connect your audio equipment:

1. Connect the Avid analog audio out cable to the 25-pin Analog Audio Out connector.
2. Connect the eight analog audio out XLR connectors to the appropriate monitoring devices.
3. Connect the Digital Audio In connectors 1–2, 3–4, 5–6, and 7–8 to your AES/EBU digital audio source.
4. Connect the four DIGITAL OUT connectors to your AES/EBU audio device.

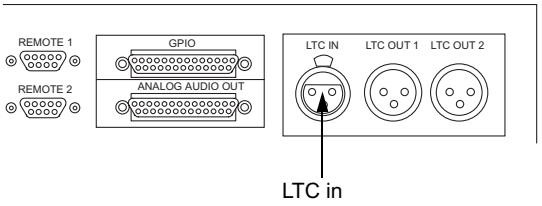
Timecode Cables

To connect longitudinal timecode (LTC) cables:

- Connect your LTC timecode source to the LTC IN connector.

The LTC Out functionality has not been implemented.

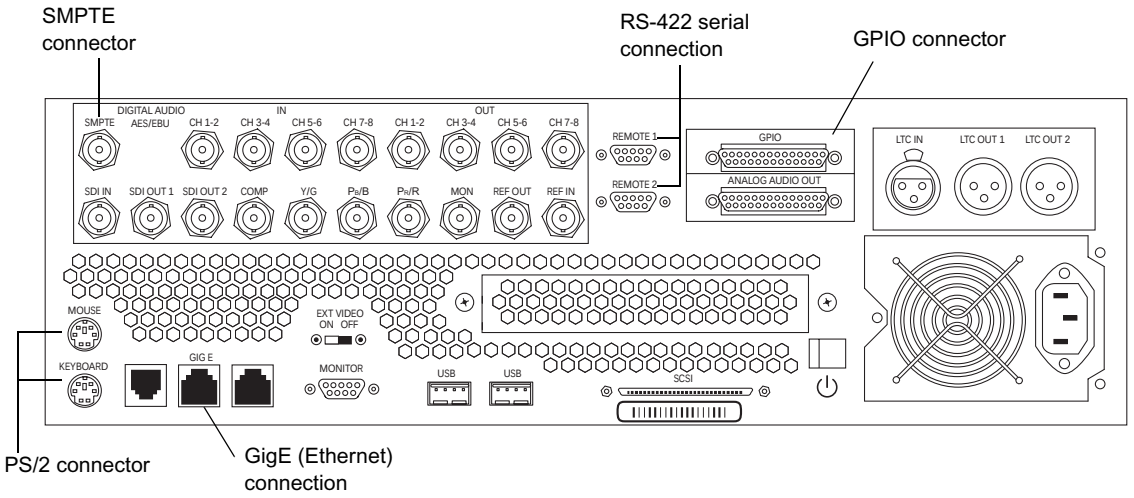
LTC Connection



Control and Communications Cables

The following figure identifies the connectors used to connect the control and communication cables. For the exact location of the control and communication connectors, see “Chassis 0010-07109-xx” on page 135.

Control and Communication Connections



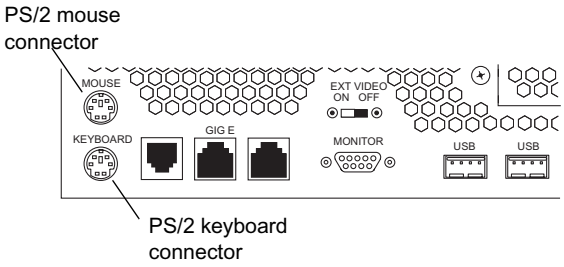
PS/2 Connections

You need to provide a standard PS/2 compatible keyboard and mouse. The keyboard and mouse plug directly into the rear of the chassis.

To connect the keyboard and mouse cables:

1. Connect the PS/2 compatible mouse to the connector with the mouse icon on the rear of the Airspeed.
2. Connect the PS/2 compatible keyboard to the connector with the keyboard icon on the rear of the Airspeed.

Keyboard and Mouse PS/2 Connectors



Ethernet Connection

To connect the Ethernet cable:

- Connect an Ethernet CAT-5 cable with a RJ-45 connector from the GigE connector to an Gigabit (1000BASE-T) Ethernet switch.

If the AirSpeed system is connected to only a single additional device (for example, a network with a single node at each end), no switch is required when using Gigabit Ethernet (GigE).

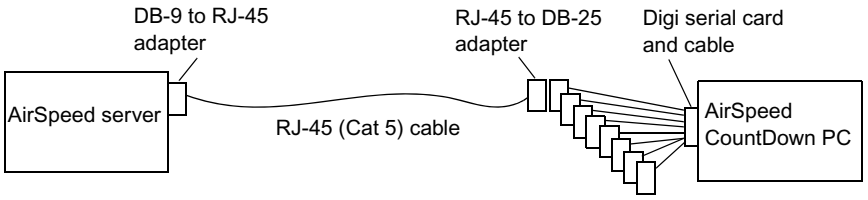
SMPTE Connection

To connect the SMPTE alarm cable:

- Connect the SMPTE Alarm (BNC) connector to your facility SMPTE Alarm loop or other contact closure activated alarm system.

Remote Serial Connection

The following illustration shows the equipment needed to connect an AirSpeed CountDown PC to an AirSpeed server, using standard RJ-45 Category 5 Ethernet cable. This cable must be a straight cable with all eight conductors wired.



Avid supplies the following adapters for the Digi® card:

Technical description	Avid part number	Avid description
RJ-45 (female) to DB-9 (male) adapter	0070-03154-01	“RS-422 deck”
RJ-45 (female) to DB-25 (female) adapter	0070-03153-01	“RS-422 Digi”

These adapters use the following pinouts:

DB-9 (male) to RJ-45 (female) adapter		RJ-45 (female) to DB-25 (female) adapter	
AirSpeed DB-9 Pin Number	**Wire Color**	**Digi DB-25 Pin Number**	**Wire Color**
2 (TX–)	Black	16 (RX–)	Black
3 (RX+)	Red	2 (TX+)	Red
7 (TX+)	Yellow	3 (RX+)	Yellow
8 (RX–)	Green	14 (TX–)	Green
not used	Brown	not used	Brown
not used	Gray	not used	Gray
not used	Blue	not used	Blue
not used	Orange	1 (not used)	Orange

To connect remote serial cables:

1. Connect one end of a 9-pin serial cable to either the Remote 1 and Remote 2 RS-422 connector.
2. Connect the other end of the serial cable to your RS-422 device, such as an automation system or edit controller. The remote ports can be used for:
   - Remote control via VDCP protocol
   - Sony BVW protocol
3. Connect the second remote port by repeating steps 1 and 2.

GPIO Connection

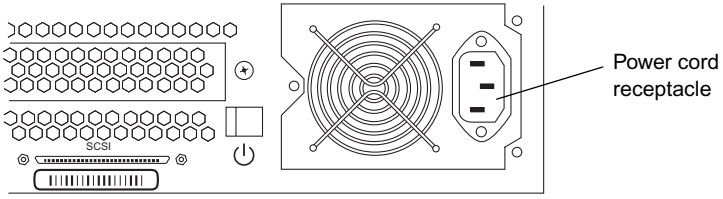
To connect a GPIO cable on the rear panel:

1. The general purpose input/output (GPIO) interface requires you to build a cable. Refer to "GPIO" on page 147 for GPIO connector pin assignments and build a cable using a 25-pin D-type female connector on one end. The other end of the cable depends on the GPIO interface on the device you are controlling.
2. Connect the 25-pin connector to the GPIO connector.
3. Connect the other end of the GPIO cable to the GPIO device.

Power Cord

An U.S. IEC power cord is shipped with the AirSpeed. If your local power distribution is not compatible with the supplied cord, you must provide your own IEC power cable that is compatible with your country's power system. The power connector accepts 100 to 240 Vac, 50/60 Hz.

Power Connection



To connect power:

1. Attach the power cord to the power receptacle on the rear of the AirSpeed.
2. Connect the other end of the power cord to a properly grounded stable power source.

For maximum power protection, Avid recommends surge protected uninterruptible power supply (UPS).

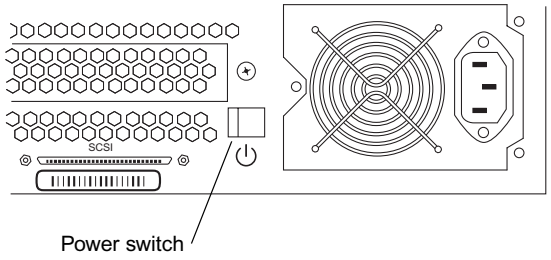
Turning the AirSpeed On and Off

To turn on up the AirSpeed:

- Press the AirSpeed power switch, located on the rear panel.

This is a spring-loaded switch that does not stay recessed after you press it.

Power Switch

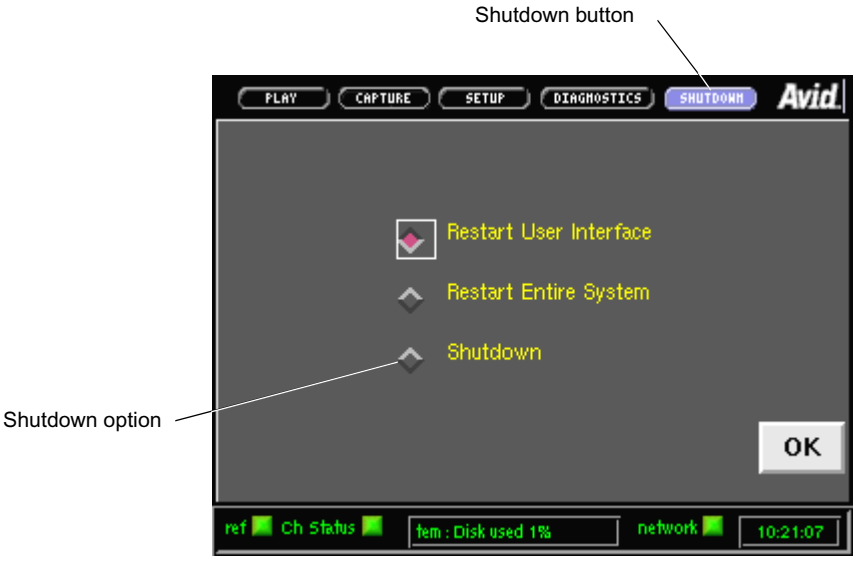


When the user interface appears on the front panel display, the system is ready to be configured.

To turn off the AirSpeed:

1. Press the Channel Select button 1 until the UI is displayed.
2. Click the Shutdown button.

Shutdown Tab



3. Select the Shutdown option to completely turn off the software and hardware.
4. Click OK.

   A variety of internal tasks such as file system clean-up are performed, and the console screen appears. Wait until the operating system text stops scrolling on the UI monitor and the word Reset is displayed twice.
5. After the text in the console has stopped for approximately 10 seconds, press the power switch located on the rear chassis panel to turn the AirSpeed off.

Workgroup Requirement

You must have the Avid Unity workgroup environment already operating before adding the AirSpeed to the environment.

Configuration

The AirSpeed is configured at each site as a network appliance. Site-specific settings need to be applied for the AirSpeed to operate in your workgroup environment. Each AirSpeed installed needs to be uniquely configured.

AirSpeed requires fixed internet protocol (IP) addresses for the network interface. As part of a setup procedure, your administrator must first configure an administrative client system to match the AirSpeed configuration IP address. Typically, a direct physical connection is established using this IP address.

Program AirSpeed with the following:

- A site-specific host name/domain name
- A site-specific node IP address and mask for the network interface
- The DNS server IP address (required for Avid Unity ISIS)
- The NTP server IP address
- The Shared Storage Server
  - PortServer Pro name (if DNS is present, if not use an IP address)
  - System Director name (DNS required)
- MediaManager host name (if DNS is present, if not use an IP address)

Some setting changes require you to power cycle the AirSpeed. A message appears in the UI and playback monitor when you must power cycle the AirSpeed for the changes to take effect.

Do not connect any AirSpeed to your workgroup environment until you have assigned a new, unique IP address to each AirSpeed.

Default IP Address

The AirSpeed chassis 0010-07109-*xx* is initially configured with the following default IP address and Subnet mask:

- IP address: 192.168.1.101
- Subnet mask: 255.255.255.0

The 0010-06715-xx chassis did not ship with an IP or subnet address preconfigured.

To avoid network IP address and subnet mask conflicts, connect one AirSpeed to your Avid Unity environment at a time. Set the appropriate IP address and subnet mask settings in the Setup > Network tab for that AirSpeed and save the settings. For information on the Network tab, see "Network Tab" on page 77. The IP address and subnet mask information must be provided to you by your network administrator.

Setting the Time Zone, Date, and Time

AirSpeeds are shipped from Avid with the default time zone set to Greenwich Mean Time (GMT). When setting up the AirSpeed for the first time, you need to select your time zone, then set the date and time.

The AirSpeed must be idle when you set or change the date or time.

To localize the AirSpeed with the date and time.

1. Open a console window by simultaneously pressing **Ctrl+Alt+F1**.
2. Log in using:
   - Login name — **maint**
   - Password — **mars**
3. At the command prompt, type **cd /usr/share/zoneinfo**, and press **Enter**.
4. Type **ls**, and press **Enter**.

   Find the correct continent or zone for your specific locale from the list. The following list is displayed:

```
Africa      Australia   Etc         MET         WET
America     CET         Europe      MST         posixrules
Antarctica  CST6CDT     Factory     MST7MDT     zone.tab
Arctic      EET         GMT         PST8PDT
Asia        EST         HST         Pacific
Atlantic    EST5EDT     Indian      SystemV
```

You must type the selection exactly as it appears in the list (upper or lower case).The time zones for North America are listed in the directory with the daylight savings time zones ending with DT.

5. At the command prompt, type **cd <*region or zone*>**, and press **Enter**.

   For example, if your continent is America, type `cd Asia`, and press `Enter`. You are now at the `/usr/share/zoneinfo/Asia` directory.
6. At the command prompt, type **ls** and press **Enter**.

   Choose the closest city file to your location.
7. At the command prompt, type: **cp <*city*> /etc/localtime** and press **Enter**.

For example, if your city is New York, type `cp New_York /etc /localtime` at the command prompt.

After pressing `Enter`, the city file is copied into the /etc directory.

To set the date and time:

1. While still in the console window, type **`date`** and press **`Enter`** to view the current date and time set.
2. To set the date, type **`date`** and enter the date and time in the following format and press **`Enter`**.

   yymmddhhmm.ss

Do not use spaces or any characters between the numbers.

After pressing enter, the date and time display are displayed. Confirm that the information is correct. If not repeat Step 2.

3. Close the console window by simultaneously pressing **`Ctrl+Alt+F3`**.
4. Restart the AirSpeed by selecting Shutdown > Restart Entire System in the AirSpeed UI.
5. Click OK.

Accessing the AirSpeed Through Telnet

You can also access the AirSpeed console using remote systems on the Avid Unity network. Telnet is a common way to remotely access the AirSpeed using a client system such as a NewsCutter. You need to know the IP address and host name of the target AirSpeed. The following information does not provide the details on how to completely set the time zone, but advanced administrators might find this information helpful.

This procedure is one way to get to the a time zone utility in the AirSpeed console. This procedure is not recommended because some selections are difficult to select without a color UI. There are several free Telnet applications on the Internet that make it easier to use this utility, for example, PuTTY.

Windows® HyperTerminal has also been used but you must make sure you select TCP/IP for your connection. Avid has found that selecting VT100 provides the best results.

To access your AirSpeed using Telnet to select the time zone:

1. Make sure your AirSpeed is powered on.
2. From an Avid Unity Client system, click Start > Run.
3. Type **`Telnet <AirSpeed host name>`** and press **`Enter`**.

4. Log in using:
   - Login Name — **`maint`**
   - Password — **`mars`**
5. Type **`tzsetup`** and press **`Enter`**.
6. Select your region, country, and time zone.
7. Enter the date and time as previously described.
8. Close the Telnet application.

Setting Up for Transferring to Unity

After setting up the appropriate Avid Unity settings for the AirSpeed in the Setup > Network tab, enter the settings for the MediaManager and PortServer in the Setup > Send tab. Remember to save the settings on each tab. Captures are complete when the clips have been transferred to Avid Unity and are checked into MediaManager. After they are checked into MediaManager; they are available for automatic deletion.

MediaManager System User Account

The AirSpeed must be a system user client on the MediaManager. Use the following procedure to add the AirSpeed account to your MediaManager, see the MediaManager Help for more information.

The MediaManager application now includes the AirSpeed System User account. However, if your MediaManager does not already have an AirSpeed System User account, you must create one.

To create a system user account on your MediaManager server:

1. Click Administration in the mode selector.
2. Click the New User icon in the Functions list.

   The Create User window opens.
3. Specify the account attributes by typing in the appropriate text boxes.
   - User Name — **`airspeed`**
   - Password — **`avid`**

     The built-in login password for all AirSpeed servers is “avid.”
4. Select the System User account privilege level from the Role list.
5. Click Save.

   The account is created and added to the Users list.

License Agreement

Once the AirSpeed is connected to the Avid Unity environment, you must accept the Avid End User License Agreement. AirSpeed uses an Avid Unity Ethernet client license.

Multiple Domain Names and DNS servers

In the event there is a failure with the primary domain and DNS server, multiple domains and DNS servers can be used as backups.

To create multiple domain names and DNS servers:

1. Open a console window by simultaneously pressing **`Ctrl+Alt+F2`**.
2. Log in using:
   - Login name — **`maint`**
   - Password — **`mars`**
3. At the command prompt, type **`cd /usr/home/pluto/etc`**, and press **`Enter`**.
4. Type **`vi secondary_dns`**, and press **`Enter`**.
5. Type **`i`** (this characters does not display, the editor goes into insert mode).

The "n" in the following step represents the IP address of the backup DNS servers on the network. You can enter as many DNS servers as you want.

6. Type the following to add additional DNS servers as backups:

   `nameserver` ***nnn.nnn.nnn.nnn*** and press **`Enter`**

   `nameserver` ***nnn.nnn.nnn.nnn*** and press **`Enter`**

   Press **`Esc`** and type **`:wq!`** and press **`Enter`**
7. Close the console window by simultaneously pressing **`Ctrl+Alt+F3`**.
8. Restart the AirSpeed by selecting "Restart Entire System" in the Shutdown window of the AirSpeed UI.

Static Mounted Workspaces

Avid recommends you use static mounted workspaces with the AirSpeed. You must disable dynamically mounted workspaces on the Avid Unity PortServer.

To disable dynamic mounted workspaces:

1. Log in to your Avid Unity PortServer.
2. Double-click PortServerConfiguration.exe in the following location:

   drive:\Program Files\Avid Technology\AvidUnity\PortServerStartup

   The Avid Unity PortServer Service Configuration window opens.
3. Deselect “Enable dynamic mounting of MediaNetwork workspaces” if selected.
4. Click OK and log off the Avid Unity PortServer.

Adjusting the Audio Playout Gain

The eight audio gain controls on the front panel are used to calibrate the AirSpeed for playout. These audio gain controls do not provide any function during capture. Avid recommends you play out a test tone on all eight audio channels for both Play channels. There is a separate gain control for each of the eight audio output channels. While the tone is playing, monitor the audio out on the rear of the AirSpeed with a scope to fine tune the output audio. Use the eight audio gain control knobs to vary the output. For more information see “Audio Knobs and LEDs” on page 30.

Use the Channel Select buttons to select the playout channel. The audio gain controls only adjust the audio for the Play channel selected and the audio channels allocated to that Play channel in the Setup > Channels > “Audio Channel Selection During Playback” settings. After you have made the adjustment, recess the audio gain control knobs back into the front panel so they are not easily changed.

Chapter 3

User Interface

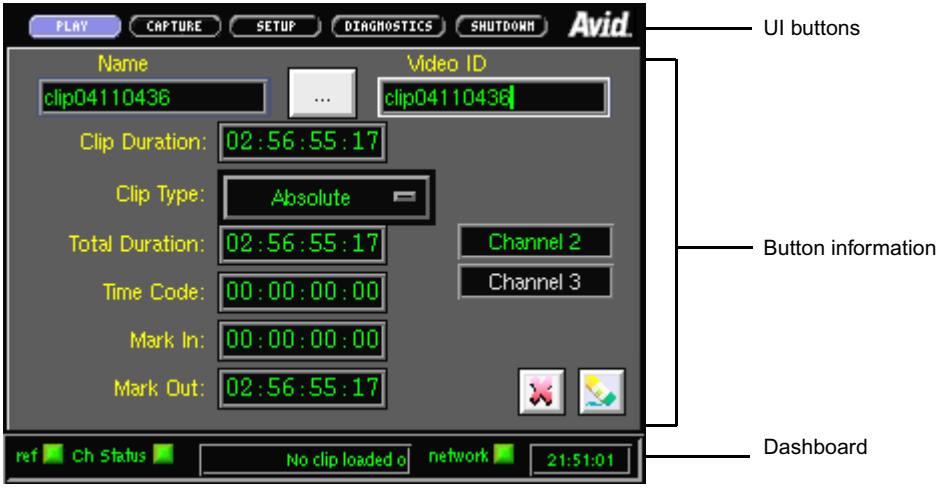
This chapter introduces the AirSpeed user interface, and provides detailed descriptions of all user interface sections and controls. This chapter includes the following sections:

- Introduction to the AirSpeed User Interface
- Play Button
- Capture Button
- Setup Button
- Diagnostic Button
- Shutdown Button

Introduction to the AirSpeed User Interface

The following figure shows the AirSpeed user interface (UI) with the Play button selected.

AirSpeed User Interface



AirSpeed UI Buttons

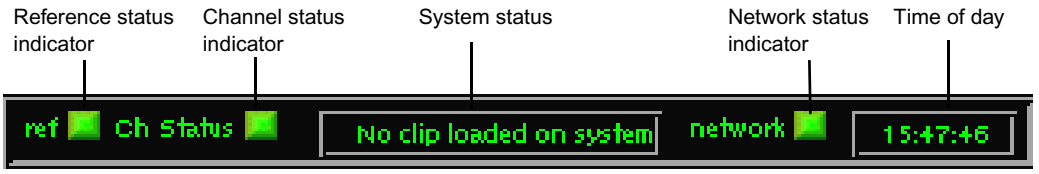
The AirSpeed UI is divided into the following sections:

- Play button — allows you to play recorded clips that are on the internal AirSpeed drives. You can play back clips on two separate channels. While playing back clips you can enter Mark IN and Mark OUT points and create locators. See "Play Button" on page 66 for information on each setting.
- Capture button — allows you to capture media with or without the timecode. You can remotely capture the media or manually press the Record button on the front panel and start capturing the media instantly. You can also set the duration of the capture in addition to setting Mark IN and Mark OUT points, and locators. See "Capture Button" on page 69 for information on each setting.
- Setup button — allows you to set system parameters such as channel configuration, video setup, network configuration and Controller Setup. For details, see "Setup Button" on page 72.
- Diagnostic button — provides front panel, disk drive, CPU fan, network, and license status. For details, see"Diagnostic Button" on page 73.
- Shutdown button — presents three different system level command options. For details, see "Shutdown Button" on page 74.

Dashboard

The dashboard is always present at the bottom of the AirSpeed UI; regardless of which UI button is clicked. It provides the AirSpeed status and also displays the internal clock. See the following figure:

AirSpeed Dashboard



The dashboard display includes the following:

- Reference status indicator — Indicates (by color) the presence and quality of your reference signal. Red indicates no signal and green indicates usable reference signal is present and the system is locked to it.
- Channel status indicator — Indicates (by color) the presence and quality of your SDI input signal. Red indicates no signal and green indicates usable input signal is present.

- System status — Displays a scrolling text message indicating the status of the system. Messages vary depending on the selected button and the operating state of the AirSpeed.
- Network status indicator — Indicates (by color) the presence of your network connection.
  - Green — Indicates a usable network signal and the TransferManager are present.
  - Yellow — Indicates a network signal is present but the MediaManager or TransferManager is not available.
  - Red — Indicates no network signal.

The Network status indicator is red if the Ethernet cable is plugged into the wrong port. For the exact location, see "Control Connections" on page 136.

- Time of day — displays the AirSpeed system's internal clock. For more information see "Accessing the Setup Subtabs" on page 75.

Common UI Buttons

The following buttons are used throughout the AirSpeed UI. Not all of the buttons are used in each UI window. The meanings of the common AirSpeed UI buttons are described in the following table.

Common AirSpeed UI Buttons

Button	Name	Function
	Create	The Create button activates when a new Video ID has been entered. Click Create to create a new file after all the fields in the button are filled in as desired. Once clicked, the Record button allows you to capture the file. Used in the Capture window.
	Delete	The Delete button activates when a known Video ID is entered, allowing you to delete the file. Used in the Play and Capture windows.
	Unload	The Unload button clears all text fields in the window. Used in the Play and Capture windows.
	OK	Accepts the information or selection and performs the function. Used in the Shutdown window.
	Save	Accepts the information and saves the settings. Used in the Setup window.

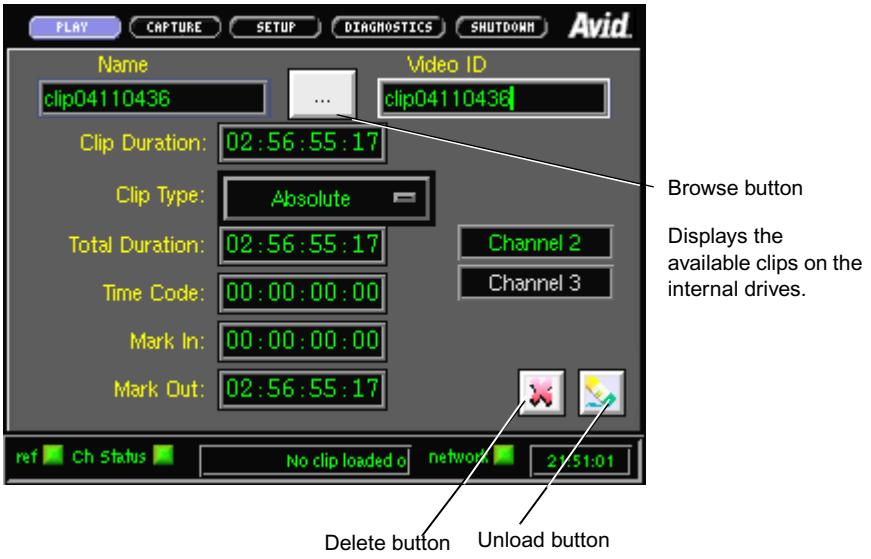
Common AirSpeed UI Buttons

Button	Name	Function
	Revert	Returns you to the information that was previously saved. Once you click the Save button, the Revert buttons uses the new saved information. Used in the Setup window.
	Browse	Opens a window listing the available clips on the AirSpeed internal drives. Used in the Play and Capture windows.

Play Button

The following figure shows the Play button. Channel 1 and channel 2 can have unique information (two different clips) loaded at the same time. Switch between the clips using the UI and Monitor buttons. For details on the Channel Select buttons, see “Button and Wheel Functions” on page 105. AirSpeed can play only the clips that are on the internal drives.

Play Button

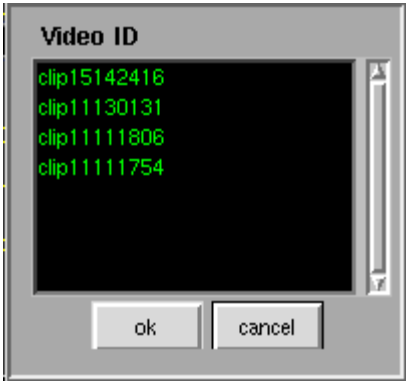


Most of the text boxes in the AirSpeed UI require input from a keyboard. After entering information in a text field, press the Enter key to enter the data and advance to the next field. The Tab key also advances you to the next user input field. Shift+Tab *does not* bring you back to the previous field.

- Name — Type the name of the clip you want to view. You can type in the Video ID instead. Once you press Enter, the Video ID displays.
- Video ID — Type the reference identification (ID) for the video you want to view. You can type in the Name instead. Once you press Enter, the Name displays.
- Clip Duration — Displays the length of time between the Mark IN and Mark OUT points. If no Mark IN and Mark OUT are set, the time matched the Total Duration text box.
- Clip Type — Select the type of media from the menu. The choices are as follows:
  - Virtual — Plays the entire clip regardless of the Mark IN and Mark OUT points. For information on the differences between virtual and absolute modes, see "Timecode Modes" on page 113.
  - Absolute — Plays the clip from the Mark IN point to the Mark OUT point. If Mark IN and Mark OUT points were not set, the entire clip is played.
- Total Duration — Shows the total extent of all media captured for the current clip (the amount of time between the first captured frame and the last). This is the same as the Clip Duration unless Mark IN or Mark Out points have been set.
- Time Code — Displays the timecode of the displayed frame.
- Mark IN — Displays the clip's playback inpoint as entered during the capture or as trimmed by an automation system. If no inpoint is marked, the text box is empty if in Absolute mode. In Virtual mode, 1 hour is entered.
- Mark OUT — Displays the clip's playback outpoint as entered during the capture or as trimmed by an automation system. If no outpoint is marked, the text box is empty.
- Channel 2 — Is highlighted to indicate when the play channel1 button is lit and channel 1 is selected. This is not a button that selects the channels.
- Channel 3 — Is highlighted to indicate when the play channel 2 button is lit and channel 2 is selected. This is not a button that selects the channels.

To load and play a clip:

1. Access the AirSpace UI by pressing Channel Select button 1 or 2.
2. Do one of the following:
   - Type in the Video ID in the Video ID text box and press **`Enter`**.
   - Click the Browse button, select a clip from the menu, and click OK.



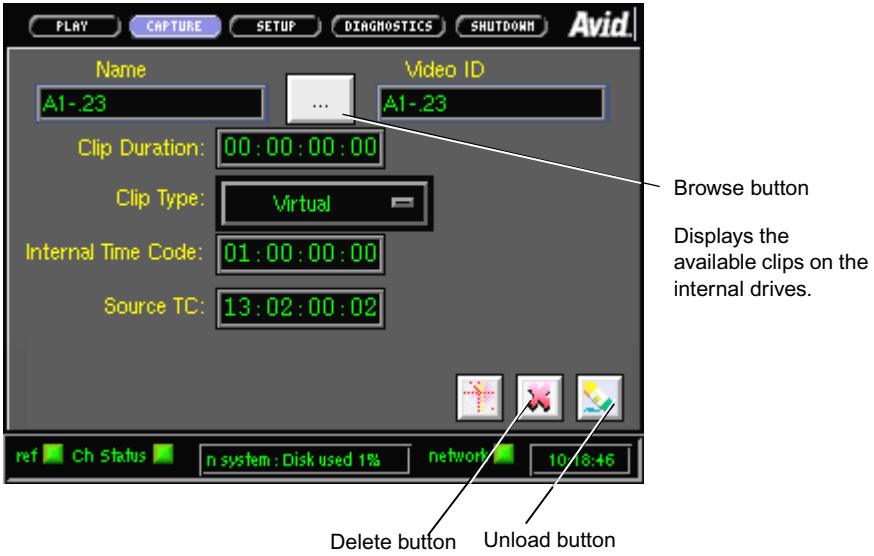
3. Click one of the following buttons after viewing the clip:
   - Click Unload if you want to clear the Play button window and view a different clip.
   - Click Delete if you want to delete the clip from the internal AirSpeed drive. The text fields in the Play button will also clear.

Clips that have been sent to the workspace are deleted. You cannot delete a clip that is in the process of being saved on the workspace.

Capture Button

The following figure shows the Capture button. Click the Capture button when you want to configure your capture settings. The capture can be controlled both locally using the operational control buttons on the front and by up to two remote control devices and by any number of Pilot applications, all simultaneously. Make sure to avoid operational conflicts. After you enter the data in this button, click the Create button.

Capture Button Selections



Most of the text boxes in the AirSpeed UI require input from a keyboard. After entering information in a text field, press the Enter key to enter the data and advance to the next field. The Tab key also advances you to the next user input field.

Select the Clip type (Virtual or Absolute mode) first, to avoid data entry loss.

- Name — Type the name you want for the clip. The Name can be the same as the Video ID. Clip Names cannot contain spaces or these characters: *, ?, :, /, and \.
- Video ID — Type the reference identification (ID) you want for the captured video. Pressing enter twice enters the text to the Name field. Video IDs can be up to eight or 31 alphanumeric characters in length. The Maximum Video ID Length is set in the Setup > System Config window, see “System Config Tab” on page 78. Video IDs can not contain spaces or these characters: *, ?, :, /, and \.

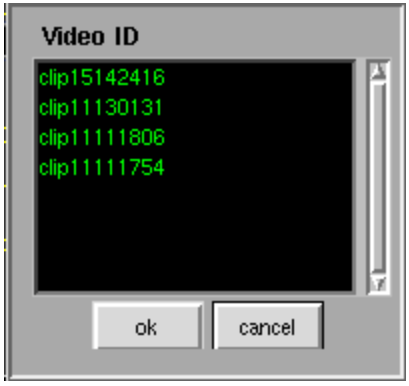
- Clip Duration — Type in the length of time you want to capture. This text box allows you to set up closed-ended captures for new clips and displays the playable clip duration for existing clips:
  - If you know when to stop capturing the media, enter the length of time you want to capture. For example, if you know media you want ends in an hour, type 00:01:00:00.
  - Leave this field blank if you are doing a crash record.
- Clip Type — Select the type of media from the menu. The choices are as follows:
  - Virtual — Captures whatever media is coming in. Use this selection during a crash record. When a new Video ID is created in Virtual mode, the Clip Duration timecode text box is dimmed, allowing open-ended capture.

Crash records are only valid when in Virtual mode.

  - Absolute — Captures media for the duration set in the clip duration. When a new Video ID is created in Absolute mode, the Clip Duration timecode text box activates and allows you to type the desired duration of the clip to be captured. After a capture is initiated, it automatically terminates at this duration (a value greater than 0 must be entered in order to capture).
- Internal Time Code — Displays the current internal AirSpeed timecode.
- Source TC — Displays the current timecode information reflected in the frame when capturing. The internal AirSpeed timecode is used when the media being captured does not have an embedded timecode. The timecode source is selected in the Setup > Channel tab, see "Channels Tab" on page 85. The Recorded TC Source selections are:
  - VITC — the time base is taken from the SDI input. If no VITC is present, the default starting timecode value is 02:22:22:22.
  - LTC — the time base is taken from the LTC input on the rear of the AirSpeed. If no LTC is present, the default starting timecode value is 01:11:11:11.
  - Internal — the internal absolute timecode is used as the time base, the default starting timecode value is 01:00:00:00.
  - Manual — you must enter the starting timecode manually.

To load and recapture a clip:

1. Access the AirSpace UI by pressing Channel Select button 1 or 2.
2. Do one of the following:
   - Type in the Video ID in the Video ID text box and press **`Enter`**.
   - Click the Browse button, select a clip from the menu, and click OK.



3. Click one of the following:
   - Click OK if you want recapture of an existing clip.
   - Click Cancel to close the Video ID dialog box and return to the previous window.

Clips that have been sent to the workspace are deleted. You cannot delete a clip that is in the process of being saved on the workspace.

Setup Button

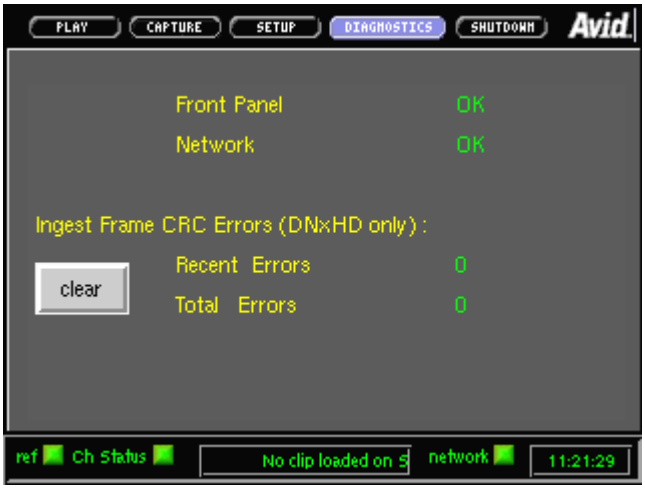
The following figure shows the Setup button. The Setup button contains six subtabs that divide the settings into groups. Once you enter your settings in a subtab, click the Save button to save and enter the settings. If you make a mistake, click the Revert button to return to the last saved settings. All Setup subtabs are described in Chapter 4.

Setup Button Selections

Diagnostic Button

Click the Diagnostic button to display the system diagnostic report. When no problem is detected, the Diagnostic button should look similar to the following illustration.

Diagnostic Button Information



This button allows you to examine the status of the monitored AirSpeed subsystems. Alert conditions are displayed at the bottom of all the windows as dashboard indicators. If a system problem detected, a status indicator on the dashboard informs you where the problem resides. For explanation of the dashboard indicators, see “Dashboard” on page 64.

The SMPTE output connector on the rear of the AirSpeed provides a alarm signal (SMPTE 269M) if the AirSpeed is in an error condition. For the location of the connector and a description of the signal, see “Chassis 0010-07109-xx” on page 135.

- Front Panel — The text to the right of Front Panel states OK when displaying information for a AirSpeed with a full front panel. On panelless AirSpeed systems, “Not Present” is displayed. For more information on the two models, see “Front Panel Controls” on page 26 and “Panelless Model” on page 28.
- Network — The text to the right of Network states OK when all of your network components are detected. If the Avid Unity MediaManager or the Avid Unity TransferManager is not available, the missing server is displayed beside the Network text stating a particular server is offline.

- Ingest Frame CRC Errors (DNxHD only) — AirSpeed has the capability of detecting frame cyclic redundancy check (CRC) errors in the incoming SDTI encoded HD feed, during captures. The frame containing the CRC error is discarded and the last known good frame is used in its place.

DNxHD media is only available when you have the Avid DNxchange option, allowing you to capture encoded HD media. For more information on this option, see "DNxchange HD Option" on page 35.

Typically, CRC errors are caused by cable integrity. If a high number of CRC errors are displayed, check your cable connections and lengths. If more than 200 CRC errors are detected, the SMPTE alarm is triggered. CRC errors are automatically cleared when the AirSpeed restarts. The clear button clears both the recent and total errors.

Shutdown Button

Click the Shutdown button to turn off or restart the AirSpeed. The Shutdown button is shown below.

Shutdown Button Selections

- Restart User Interface — Use to restart the software only.
- Restart Entire System — Use to restart both the system and the software.
- Shutdown — Use to completely shutdown. A variety of internal tasks such as file system clean-up will be performed before the operating system shuts down.

When completely turning off the AirSpeed, you must wait until the operating system text stops scrolling on the UI monitor before pressing the power switch.

Chapter 4

Configuring the AirSpeed

This chapter provides information on each of the Setup tab parameters within the AirSpeed UI. You can change the AirSpeed configuration settings remotely using the Virtual Network Computing (VNC) application from any client on the Avid Unity Media Network. Use the VNC application to configure the AirSpeed when access to the AirSpeed is not available or when a keyboard and mouse are not attached.

After using the VNC application to remotely change the AirSpeed setting, you must restart the AirSpeed before the changes are implemented. For more information on VNC see, "Virtual Network Computing" on page 131. The following topics are discussed:

- Accessing the Setup Subtabs
- Network Tab
- System Config Tab
- Channels Tab
- Destination Template
- Software Tab
- Send Tab
- Maintenance and Troubleshooting

Prior to proceeding with AirSpeed configuration, ensure that your AirSpeed is installed and connected using the information in "Chassis 0010-07109-xx" on page 135.

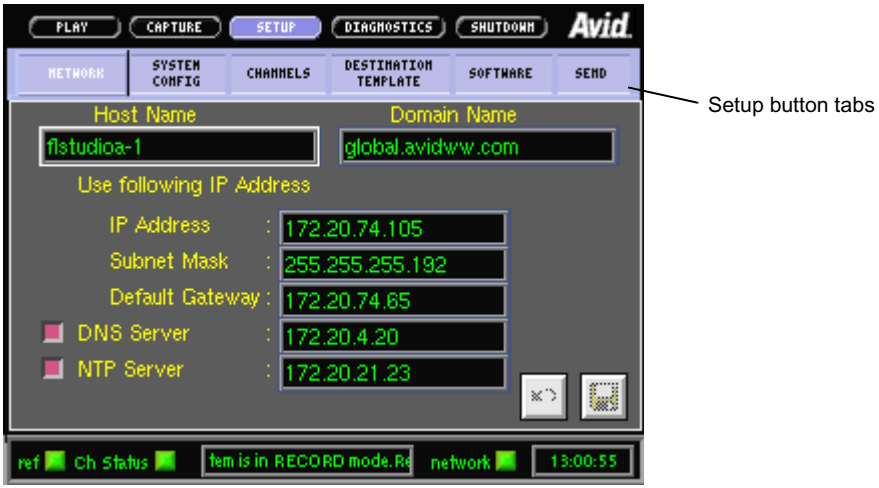
Accessing the Setup Subtabs

The Setup button allows you configure all aspects of the AirSpeed. Accessing this area impacts all of the AirSpeed operations and should only be conducted by qualified personnel.

Changing AirSpeed setup parameters can cause interruption of playout and/or destruction of media on the AirSpeed. However, viewing setup parameters can be done without impacting the AirSpeed. Proceed with caution.

You need a keyboard and mouse connected to the rear of the AirSpeed to select and enter data using the AirSpeed UI; see “Control and Communications Cables” on page 50. Alternatively you can also use the VNC application to access the AirSpeed UI. The following figure shows the Setup button, which is divided into six subtabs.

Setup Button



The Setup button list six tabs that provide access to the various AirSpeed setup areas. The tabs remains on the window while the setup parameter section changes accordingly. The Setup button subtabs are used to perform the following:

- Click Network to configure the AirSpeed’s network parameters.
- Click System Configuration to change the audio and video format.
- Click Channel to configure your audio and video channels.
- Click Destination Template to create capture templates. Multiple templates can be saved.
- Click Software to update AirSpeed software via the network.
- Click Send to identify the shared storage and bandwidth management in your Avid Unity environment.

Network Tab

The Network configuration tab allows you to set the network configuration parameters and identify your DNS server. All network communication is done through the gigabit Ethernet (Gig E) connection on the rear of AirSpeed.

The following figure shows an example of the Network tab.

Setup Button — Network

Any changes you make to the current network settings do not take effect until you click the Save button and then restart the AirSpeed.

If you are unsure about any network configurations, names, or setup values discussed below, please contact your facility's AirSpeed administrator for technical assistance.

- Host Name — Type the name you want to give the AirSpeed.
- Domain Name — Type the name of the domain for your Avid Unity environment (option).
- Use the following IP Address — You are required to provide the following information:
  - IP Address — Enter the IP address you want to assign to the AirSpeed.
  - Subnet Mask — Enter your subnet mask values.
  - Default Gateway — Enter the address for your network's default gateway (option).
- DNS Server — Enter the address for your DNS server (option).

- NTP Server — Enter the IP address for your Network Time Protocol (NTP) server (option). The NTP server synchronizes the time on your network and client to a reference time source.

  When you enter an IP address for a NTP Server, click the Save button and confirm you want to make the changes by clicking OK in the dialog box. AirSpeed checks to see if the NTP server is running. If the NTP server is not running or in a valid state, the NTP Server checkbox is deselected, and the IP address is reset to NO.

Click Save to save your configuration and enable the network interface. After the network is configured, restart the AirSpeed to enable the changed settings.

System Config Tab

The System Config (Configuration) tab enables you to select the video standard, video and audio format, and the method for deleting media off of the AirSpeed.

Modifying System Configuration Selections can invalidate media.

The following figure shows an example of the System Config tab.

Setup Button — System Config (First Window)

When you click the Next button a second set of System Config selections become available, see “Setup Button — System Config (Second Window)” on page 82. Click the Previous button to return to the first window of the System Config selections.

The first window of the System Config tab displays the following:

- Video Standard — Select standard definition (SD) NTSC or PAL or select a high definition (HD) format. The following formats are available:
  - SD NTSC (525 lines, television standard, normally Drop Frame)
  - SD PAL (625 lines)
  - HD 1080 Interlaced (available with the DNxchange option — MXF only)
    HD 1080i/59.94 fields per second
    HD 1080i/50 fields per second
  - HD 720 Progressive (available with the DNxchange option — MXF only)
    HD 720p/59.94 frames per second

DNxHD media is only available when you have the HD media encoded using the optional Avid DNxchange. When an HD Video Standard is selected, the Compression Type menu is not available.

- Compression Type — Select the SD NTSC and SD PAL compression you want to capture. The following types are available:

Changing the media format alters the available capture time. For example, if you change from DV 25 to DV 50, your AirSpeed's available capturing time is cut roughly in half.

  - DV compression
    DV 25 — captures the most DV media on your workspace
    DV 50 — captures higher DV quality video using twice the space of DV 25
  - MPEG I-frame-only compression
    IMX 30 — captures the most MPEG media on your workspace
    IMX 50 — captures higher MPEG quality video
  - 1:1 captures high quality standard definition uncompressed media (MXF only).

    When working with 1:1 uncompressed media only single channel play out is supported. You cannot select the second play out channel from the front panel or the AirSpeed Pilot application. The Channel Select button 2 on the front panel is disabled and the second play channel selection in AirSpeed Pilot is disabled.

In SD 1:1 uncompressed and DNxHD playback modes, AirSpeed limits the number of simultaneous transfers to two: one play while transfer and one background transfer, or two background transfers.

- Chroma Format — Select either 4:1:1 or 4:2:0 format (chroma and luma ratio) when PAL is selected as the Video Standard with a DV 25 Compression Type. This option is not available when you have NTSC selected as the Video Standard.

- Audio Source — Select the appropriate Audio Source button to choose whether you want the audio input to be embedded or discrete:

Discrete audio cannot be used with the DNxchange option. HD video, timecode, audio, and ancillary data are embedded in the SD SDTI stream.

  - Discrete — assigns up to eight channels of audio to be captured from the AES digital inputs (AES 1/2, 3/4, 5/6, and 7/8 found on the rear panel).
  - Embedded — assigns up to eight channels of 20-bit audio to be captured from data extracted from the horizontal ancillary data embedded in the SDI video stream.
- Audio Resolution — Select if you want to capture at 16- or 24-bit audio:
  - 16 bit — for normal DV media compatibility.
  - 24 bit — for ultimate audio quality or Dolby E compatibility.

24 bit is required to operate with Dolby E signals, while 16 bit is adequate to support Dolby AC-3.

- TC Mode — Select whether you want Drop or Non-Drop frames:

Do not select Drop Frame if you are using PAL.

  - Drop — is short for Drop Frame and puts the AirSpeed into Drop Frame mode (only in NTSC format).
  - Non Drop — is short for Non Drop Frame and puts the AirSpeed into Non Drop Frame mode.
- Clip Deletion Mode — Select whether you want to manually or automatically delete media off of your internal drives:
  - Manual — lets you delete the media off of the AirSpeed internal drives when you determine appropriate.
  - Auto — allows AirSpeed to automatically delete media from the internal drives (set the percentage using the Auto Delete button).
- Maximum Video ID Length — Select the maximum number of characters allowed for the video ID names:
  - 8 — Maximum number of characters supported with VDCP. The VDCP selection is under the Remote Control Protocol, see the "Channels Tab" on page 85.
  - 31 — Maximum length of characters supported in Avid workgroups.

All saved Destination Templates are erased when changing the Maximum Video ID Length setting.

- Auto Delete — When Auto is selected in the Clip Deletion Mode, click the Auto Delete button to set a high and a low percentage for deleting media. When media has filled the internal storage capacity to the high percentage setting (percentage of storage used on the internal drives), media is deleted until it reaches the low percentage setting.

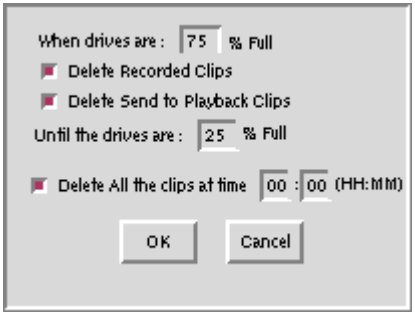
  Media is deleted after it has been transferred and saved to the Avid Unity workspace. If AirSpeed is unable to transfer the media or if the workspace is filled, AirSpeed continues to capture until the internal drives are filled. Once the condition is corrected, and the media is transferred, media deletes as specified in the Auto Delete dialog box.

  Clips are protected from the Auto Delete function under the following conditions:

  - Clips that are in use
  - Clips that are delete protected (Avid FlightPlan and Avid Pilot function)
  - Clips that have not successfully transferred to a workspace (Capture mode only)

Media can be manually deleted using the Avid FlightPlan or Avid CountDown applications.

Auto Delete Dialog Box

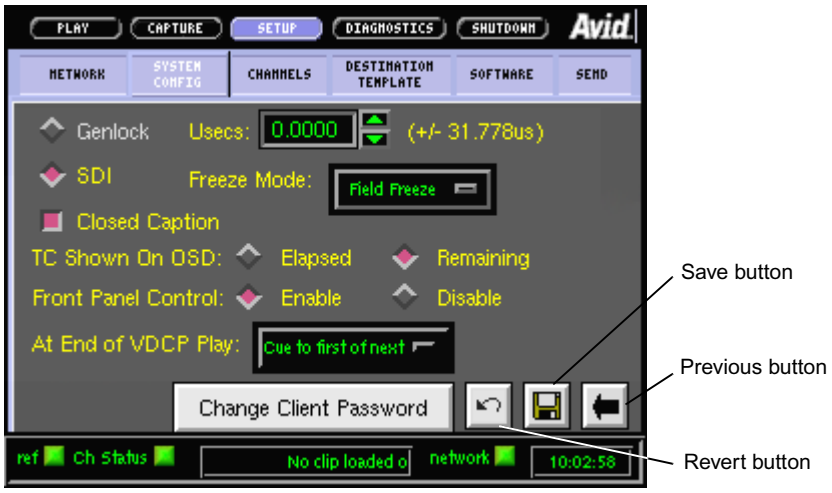

When drives are : 75 % Full
Delete Recorded Clips
Delete Send to Playback Clips
Until the drives are : 25 % Full
Delete All the clips at time 00 : 00 (HH:MM)
OK
Cancel

  - Delete Recorded Clips — Select this option to delete the captured media when the drives reach the high percentage mark.
  - Delete Send to Playback Clips — Select this option to delete the playout media when the drives reach the high percentage mark.
  - Delete All the Clips at Time (HH:MM) — Select this option and set the time (hour and minutes) when you want the media to be deleted from the internal drives. All candidate media is deleted from the internal drives every day regardless of the high and low percentage settings.

Click Save to save your configuration and enable the video mode settings, or Revert to cancel any changes and return to the previous settings. After the settings are saved, restart the AirSpeed to enable the new settings.

When you click the Next button, a second set of system configuration selections become available; see the following "Setup Button — System Config (Second Window)". Click the Previous button to return to the first System Config selections.

Setup Button — System Config (Second Window)



The selections in this window allow you to adjust the SDI output timing.

The second window of the System Config tab displays the following:

- Genlock — Locks the video output signal timing to the analog reference input signal provided to the rear panel connector.
- µsecs (Microseconds) — Allows you to slow down or advance the video timing relative to the horizontal genlock timing source.

The recommended setting when using DV 25 and DV 50 with closed captioning is –2 µsecs. Since the closed captioning line is beyond the standard DV display lines, changing the timing shifts the display so that the closed caption line can be displayed.

- Freeze Mode — When performing any operation other than playing and shuttling a clip, select the behavior of the frame that is displayed when you stop.
  - Frame Freeze — The SDI and composite output alternate between the fields of a frame.
  - Field Freeze — The SDI and composite output play the first field of a frame.
- SDI — Locks the video output signal timing to the SDI video input signal provided to the rear panel connector.

- Closed Caption — Enables and disables the line typically used in the media for closed captioning. When selected this line includes closed caption data. If deselected, this closed caption data line is left blank and can be used for other data.
- TC Shown On OSD — Provides an on-screen display (OSD) in the AirSpeed UI > Capture > Source TC text box of how much time has past or is left during a capture.
  - Elapsed — Displays how much time has passed since the capture started. Timecode elapsed can be displayed in either Absolute mode or Virtual mode. In virtual mode, the timecode continues until the capture or play is stopped.
  - Remaining — Displays how much time is remaining to the end of the clip. Timecode remaining can be displayed only in Absolute mode. Virtual mode denotes an endless tape and does not calculate the time remaining.
- Front Panel Control — Prevents the operation control buttons, Mark In and Mark Out buttons, locator buttons, shuttle ring, and jog wheel from functioning on the AirSpeed front panel. Front panel control functions are described in "Operational Control Buttons" on page 106. This option is not selectable on the panelless AirSpeed model.

The Channel Select buttons and the AirSpeed UI are not affected when the front panel controls are disabled.

  - Enable — Allows you to control the AirSpeed using the front panel controls and buttons.
  - Disable — Restricts you from using the front panel controls and buttons on the front panel. Capture and playback functions are done through remote applications.
- At End of VDCP Play — Select one of the following functions to be performed at the end of the clip playout from VDCP:

This setting is only available when using VDCP protocol with an external controller.

  - Cue to First of Next — Cues to the first frame of the next clip in the playlist.
  - Wait in Black — Displays black after playing the clip. The output goes to black and the AirSpeed does not advance to any other clip.
  - Stop in Last Frame — Displays the last frame of the clip that was just played.
- Change Client Password — Click the Change Client Password button to set a password for accessing the AirSpeed through Avid Pilot Avid FlightPlan, or VNC.

Avid Pilot, Avid FlightPlan, and VNC Password Requirements

When you change the default or the existing password, you must meet the following requirements. The password must include:

- 6 to 12 characters
- at least 4 distinct characters

For example, these passwords will work:

- `AirSpeed`
- `StudioASp4`

For example, these passwords will *not* work:

- `Air4`
- `aaa44AS`

Setting Passwords to Access AirSpeed

When you attempt to log into AirSpeed from the Avid Pilot, the Avid FlightPlan, or the Virtual Network Computing (VNC) applications, you are prompted for a password. A password is required even if you have not set one. The default password for Avid Pilot and Avid FlightPlan is **`avid123`**. The default password for VNC is **`mars`**. You cannot connect to the AirSpeed from the Avid Pilot, Avid FlightPlan, or VNC clients without entering a password. For more information on VNC, see "Virtual Network Computing" on page 131.

*The default password for VNC is **`mars`** but it does not follow the password requirements previously described. Once the default VNC password is changed, you cannot return to the default password of **`mars`**.*

To set or change the password:

1. Click Change Client Password in the Setup > System Config (second window).

Client Password Dialog Box

2. Select Pilot, FlightPlan, or VNC from the Select Client menu.
3. Type your password in the Password text box.
4. Re-type the password in the Confirm password text box.
5. Click Save to save the new password, or Cancel to not make any changes and return to the previous settings.

   The new password is required next time you log in to this AirSpeed with Avid Pilot, Avid FlightPlan, or VNC.

After you save the new password, the change takes effect immediately. You do not need to restart the AirSpeed or the AirSpeed UI before the new password is enabled.

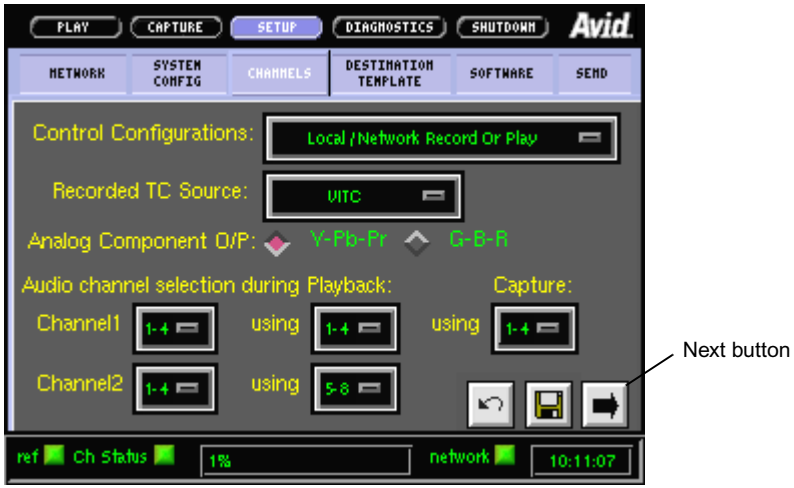
Channels Tab

The Channels tab allows you to select the number of channels used while capturing and playing back audio. This tab is also used to select your timecode source, remote control configuration, and characteristics of your analog component video output.

Channel configuration can be configured independently, with variations appropriate to primary or secondary channel features.

The following figure shows an example of the Channels tab.

Setup Button — Channels (First Window)



When you click the Next button, a second set of channel selections become available, see “Setup Button — Channels (Second Window)” on page 89. Click the Previous button to return to the first window of the Channel selections.

The first window of the Channel tab displays the following:

- Control Configurations — This menu allows you to control the AirSpeed through a remote controller. AirSpeed supports the following remote controller configurations:
  - Local/Network Record or Play — Local and network clients have full control of the AirSpeed. These clients can perform capture and play operations.

    VDCP or Sony BVW clients cannot connect to AirSpeed.
  - Local/Network Play1 and VDCP Play2 — Local and network clients control playout of Channel 1, and VDCP clients control the playout on Channel 2 of the AirSpeed.

    No capture functions can be performed and Sony BVW clients cannot connect to the AirSpeed.
  - VDCP Record — Video disk control protocol (VDCP) clients can control the AirSpeed through the serial RS-422 remote connector. Only one VDCP client can connect to AirSpeed and perform captures.

    Network, local, and Sony BVW clients cannot control the AirSpeed or perform playouts.

- VDCP Play1 Play 2 — VDCP clients can connect to AirSpeed and use each of the Play channels independently.

  Network, local, and Sony BVW clients cannot control the AirSpeed and no captures can be performed.

- Sony Play1 or Record — Sony BVW VTR protocol. Sony BVW clients can control the AirSpeed through the RS-422 remote connector. One Sony BVW client can capture or play using VTR type operations.

  Network, local, and VDCP clients cannot control the AirSpeed and the Play2 Channel cannot be used.

When using Sony BVW modes, use the Avid Pilot application to create, load, or unload clips into AirSpeed. Sony BVW protocol has no provisions for such operations.

- Sony Play1 Play2 — Sony BVW VTR protocol. Sony BVW clients can control the AirSpeed through the RS-422 remote connector. Two Sony BVW clients can connect to the AirSpeed and initiate playout operations on Play1 and Play2 channels.

  Network, local, and VDCP clients cannot control the AirSpeed and no captures can be performed.

- Unrestricted VDCP — This setting uses absolute mode and allows both VDCP and network clients to control the AirSpeed using the serial RS-422 remote (VDCP) and network (PAPI) protocols. Sony BVW clients cannot control AirSpeed in this mode.

  When capturing in this mode using the network or VDCP (serial port 1 only), you cannot play a clip on either channel using any protocol.

  When playing out on either channel 1, channel 2, or both channels, you cannot perform a capture using any protocol.

You cannot initiate a crash record from the front panel with this setting. VDCP works only with absolute mode, crash records are in virtual mode.

- Unrestricted Sony — This setting uses virtual mode and allows both Sony and network clients to control the AirSpeed using the Sony BVW and network (PAPI) protocols. VDCP clients cannot control AirSpeed in this mode.

  When capturing in this mode using the network or Sony protocols, you cannot play a clip on either channel using any protocol.

  When playing out on either channel 1, channel 2, or both channels, you cannot perform a capture using any protocol. Clips that you have loaded cannot deleted clips.

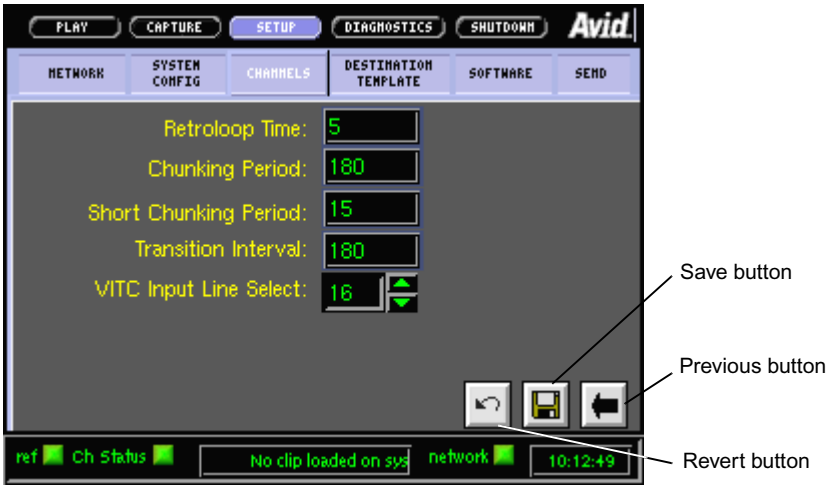
AirSpeed does not support using all three protocols (VDCP, PAPI, and Sony) simultaneously. For example, you cannot access AirSpeed using VDCP through serial port 1, Sony through serial port 2, and PAPI using the network at the same time.

- Recorded TC Source — This menu allows you to select the timecode source while capturing. When you use CaptureManager, this setting is automatically set by the application and the current mode is overridden. The timecode selected in this menu is displayed in the Capture > Source TC text box; see "Capture Button" on page 69.
  - VITC — When this option is selected, the time base is taken from the SDI input. If no VITC is present, the default starting timecode value is 02:22:22:22.
  - LTC — When this option is selected, the time base is taken from the LTC input on the rear of the AirSpeed. If no LTC is present, the default starting timecode value is 01:11:11:11.
  - Internal — This setting uses the internal absolute timecode as the time base, the default starting timecode value is 01:00:00:00.
  - Manual — Use this setting to enter the starting timecode manually. The timecode value is entered into the Capture > Source TC text box, see "Capture Button" on page 69. The default value is zero.
- Analog Component O/P — Select whether you want Y, Pb, Pr or G, B R characteristics for your video component output.
- Audio Channel Selection During Playback — These menus allow you to select how many audio channels you want to output. The selections are:
  - 0
  - 1 – 4
  - 5 – 8
  - 1 – 8

  You can select a maximum of eight channels total, so if you select 1 – 4 channels of audio output on one playback channel, you have 0 or 5 – 8 channels available for the other playback channel. However, if you select 1 – 8 audio outputs on one of the playback channels, you cannot select any audio output on the other playback channel.
- Capture — Select the number of audio channels you want to capture from the menu. The choices are as follows:
  - 0
  - 1 – 2
  - 1 – 4
  - 1 – 8

When you click the Next button, a second set of Channel selections become available see “Setup Button — Channels (First Window)” on page 86. Click the Previous button to return to the first Channel selections.

Setup Button — Channels (Second Window)



The second window of the Channel tab displays the following:

- Retroloop Time — This numeric text box allows you to enter the amount of time (in seconds) you want to capture before an unknown event occurs. You must select a Retroloop Time between 60 seconds and 14280 seconds (approximately 4 hours).

Enter the time for the Retroloop text boxes in seconds.

AirSpeed continuously captures media in a loop, using this predetermined amount of time. Once the event happens, you trigger a normal Record mode and the capture continues until stopped. The end result is a clip that contains material before and after the event.

Transfers to Avid Unity begin when you trigger the normal Record mode.

The maximum allowed value cannot exceed the total amount of disk space on the AirSpeed internal drives. When the internal drives are empty, the following table provides the approximate seconds available per video and audio format.

Internal Drive Capture Time per Video and Audio Format

Resolution	16-bit Audio	24-bit Audio
DV 25		
36 GB drives	28620 seconds (7 hours 57 minutes)	26820 seconds (7 hours 27 minutes)
73 GB	61260 seconds (17 hours 01 minutes)	57420 seconds (15 hours 57 minutes)
300 GB	255120 seconds (70 hours 52 minutes)	239160 seconds (66 hours 26 minutes)
DV 50		
36 GB drives	14280 seconds (3 hours 58 minutes)	13380 seconds (3 hours 43 minutes)
73 GB	30600 seconds (8 hours 30 minutes)	28680 seconds (7 hours 58 minutes)
300 GB	127560 seconds (35 hours 26 minutes)	119580 seconds (33 hours 13 minutes)
IMX 30 (MPEG 30)		
36 GB drives	27480 seconds (7 hours 38 minutes)	25740 seconds (7 hours 9 minutes)
73 GB	58740 seconds (16 hours 19 minutes)	55080 seconds (15 hours 18 minutes)
300 GB	244680 seconds (67 hours 58 minutes)	229380 seconds (63 hours 43 minutes)
IMX 50 (MPEG 50)		
36 GB drives	18300 seconds (5 hours 05 minutes)	17160 seconds (4 hours 46 minutes)
73 GB	39180 seconds (10 hours 53 minutes)	36720 seconds (10 hours 12 minutes)
300 GB	163140 seconds (45 hours 19 minutes)	152940 seconds (42 hours 29 minutes)
1:1		
36 GB drives	5820 seconds (1 hours 37 minutes)	5760 seconds (1 hours 36 minutes)
73 GB	12360 seconds (3 hours 26 minutes)	12180 seconds (3 hours 23 minutes)
300 GB	51720 seconds (14 hours 22 minutes)	50820 seconds (14 hours 7 minutes)

Internal Drive Capture Time per Video and Audio Format

Resolution	16-bit Audio	24-bit Audio
1080i/59.94	(24-bit audio only)	
36 GB drives		6180 seconds (1 hours 43 minutes)
73 GB		13260 seconds (3 hours 41 minutes)
300 GB		55320 seconds (15 hours 22 minutes)
1080i/50	(24-bit audio only)	
36 GB drives		7260 seconds (2 hours 1 minutes)
73 GB		15600 seconds (4 hours 20 minutes)
300 GB		64980 seconds (18 hours 3 minutes)
720p/59.94	(24-bit audio only)	
36 GB drives		6660 seconds (1 hours 51 minutes)
73 GB		14220 seconds (3 hours 57 minutes)
300 GB		59280 seconds (16 hours 28 minutes)

The number of channels selected for the capture does not affect the predetermined amount of space. AirSpeed assumes eight tracks of audio are being captured in Retroloop mode.

For a description of Retroloop, see "Capture Mode" on page 20. For information on using Retroloop mode, see "RetroLoop Mode" on page 112.

- Chunking Period — This is the period of time (in seconds) during which captured media is made available for transfer from the AirSpeed to the workspace. Media is transferred in chunks specified at this setting after the media has reached the Transition Interval.

  For example, if the Chunking Period is set to 3 minutes, Transition Interval to 1 minute, and Short Chunking period to 15 seconds, media checks in at 15, 30, 45, 60, 240, 420 seconds, etc. For more information, see "Chunking" on page 20.

- Short Chunking Period — The AirSpeed captures short chunks of media building up to the Transition Interval. This setting allows media to be available seconds after you have started the capture. See the example in the Chunking Period description.

- Transition Interval — The transition time specified (in seconds) is the point where the Short Chunking Period switches to the Chunking period. See the example in the Chunking Period description.

  The following tables show the minimum and maximum chunking times.

Minimum and Maximum Chunking for DV 25 and MPEG 30 (IMX 30)

Chunking Setting	Minimum	Maximum
Chunking Period	3 minutes	9 minutes (DV 25) 6 minutes (IMX 30)
Transition Interval	1 minute	3 minutes
Short Chunking Period	15 seconds	3 minute

Minimum and Maximum Chunking for DV 50, MPEG 50 (IMX 50), HD, and 1:1

Chunking Setting	Minimum	Maximum
Chunking Period	3 minutes	3 minutes
Transition Interval	1 minute	3 minutes
Short Chunking Period	15 seconds	3 minutes

- VITC Input Line Select — The VITC Input Line Select control determines the line on which to read the VITC timecode. Click the Up/Down buttons to select the line where VITC is located on the input. The selections are 12 to 19.

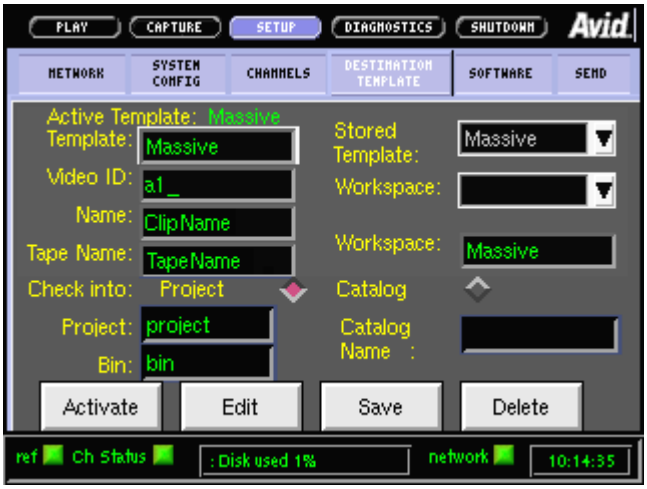
Click Save to save your channel settings, or Revert to cancel any changes and return to the previous settings. After the settings are saved, restart the AirSpeed to enable the changed settings.

Destination Template

The Destination Template tab is used to quickly select capture formats and settings you use on a regular basis. If you normally have several common media formats that you capture on specific workspaces, save these settings as a template. When you want to capture a format, select your saved template instead of configuring the settings again.

The following figure shows an example of the Destination Template tab.

Setup Button — Destination Template



The Destination Template tab displays the following:

- Template — The information displayed in this text box displays the currently loaded template.
  - To load a template, select a template from the Stored Template list, then click Activate.
  - To create a new template, select a template from the Stored Template list, click Edit, make your changes, give the template a new name and click Save. The new template is added to the Stored Template list.
- Video ID — Displays the reference identification (ID) given to the clip. Type in the name you want for the clip. When multiple clips are made, the base name stays the same and a 001, 002, 003, etc. is added to the name.
- Name — Displays a second reference name for the clip. Type in a second name you want for the clip.
- Tape Name — Displays the name given to the tape. Type in the name you want for the tape.
- Stored Template list — When you have created and saved one or more templates, they are listed in this scroll box. Select a saved template to load or delete it.
- Workspace — The information displayed in this text box displays the currently loaded template.

- Workspace list — AirSpeed scans for workspaces on Avid Unity every few seconds to check the workspace availability. When a workspace is added to Avid Unity, the scan detects the new workspace and adds the name to the Workspace list on AirSpeed. If a workspace has been removed from the Avid Unity, the workspace is deleted from Workspace list. If the deleted workspace is being used by the current Template, transfers are sent to the workspace in the default Template.

  If no workspaces exist, the captured media is saved to the internal AirSpeed drives only. The internal drives in the AirSpeed eventually fill up and the AirSpeed stops capturing.

To change the workspace for in a template:

1. Click Edit.
2. Select the new workspace in the Workspace list.
3. Click Save.

- Check Into method — Captured media can be associated with either a Project or Catalog. Depending on the method you select, the following options are available:
  - Project name — Type in the name of the project that you want used with the media.
  - Bin name — Type in the name of the bin where the clips are stored.
  - Catalog Name — Type in the name of the catalog where you want the bin and clips saved.

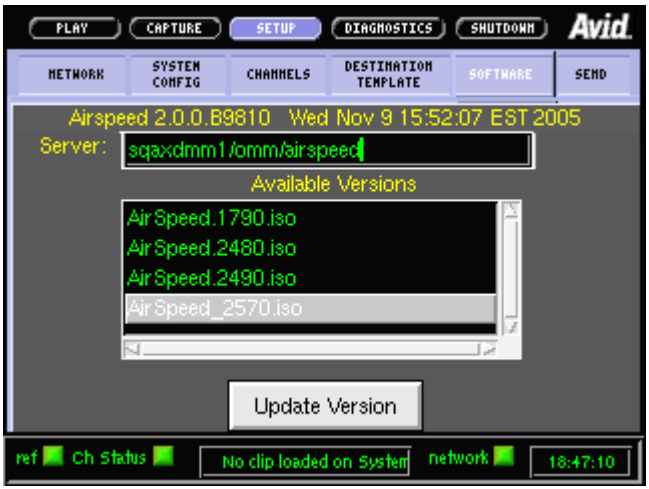
The Project, Bin, or Catalog names do not have to pre-exist before you type in the name. Typing in a new name will create the project and bin.

- Activate button — This button opens an existing template that you have previously saved. Select a template from the Stored Template list, then click Activate. The selected template is loaded.
- Edit button — This button allows you to make changes to an existing template. Select a template from the Stored Template list, then click Edit. Make the changes and click the Save button to save the template changes.
- Save button — This button saves changes you have made to an existing template or a newly created template. Create a new template or edit an existing one, and click the Save button to save the template.
- Delete button — This button deletes an existing template you have previously saved. Select the template from the Stored Template list, then click Delete.

Software Tab

The Software tab is used to update or retrieve a pervious version of AirSpeed software via the network. The following figure shows an example Software tab.

Setup Button — Software



The Software tab displays the following:

- Server — This text box is used to type the URL to a web page where the AirSpeed ISO images are located.
- Available Versions — List the available versions of software in the location designated by the Server text box.
- Update Version button — Loads a new or earlier version of AirSpeed software from a network client.

Network Setup for the Software

The AirSpeed software upgrade process requires an .iso file on the network which can be reached via a Web browser. Since the Avid Unity MediaManager runs a Web server, Avid recommends you use your MediaManager to provide such a directory.

Before you can update your AirSpeed software through the network using the AirSpeed UI, you need to create a Web server directory on your Avid Unity MediaManager server.

To set up a web server directory on your MediaManager:

1. On the MediaManager desktop, right-click My Computer and select Manage.
2. In the Computer Management window, expand Services and Applications > Internet Information Services > Default Web Site.
3. Right-click the OMM object and select Properties.
4. In the Properties dialog box, select Directory Browsing under Local Path.
5. Note the directory path shown in the Local Path box.
6. Click OK.

   This allows you to browse to the c:/omm directory level and below.
7. In Windows Explorer, navigate to the directory shown in the Local Path box, noted above. (This is typically c:/omm.)
8. In the omm directory, create a directory named “airspeed.”
9. Copy the AirSpeed_*nn*.iso file into the airspeed directory.

If you rename the AirSpeed .iso file, you must follow the naming requirements listed in the “Software-Naming Convention” on page 96.

Software-Naming Convention

When you store the AirSpeed software on the MediaManager server for AirSpeed upgrades, you must follow strict naming conventions. The Setup > Software tab in the AirSpeed UI looks for a software version similar to the following:

```
AirSpeed_1977.iso
```

Each character between the word “AirSpeed” and the “.iso” extension must be a number, a period, an underscore, or a dash. The word “AirSpeed” and the extension must not be changed.

For example, these naming formats will work:

- `AirSpeed_1977.iso`
- `AirSpeed.1977.iso`
- `AirSpeed.1977-1.iso`

For example, these naming formats will *not* work:

- `AirSpeed.1977_old.iso`
- `AirSpeed.1977old.iso`
- `AirSpeed.1977a.iso`
- `ASpeed_1977.iso`

Loading Software

To load new or earlier versions of AirSpeed software:

1. Make sure your AirSpeed is on the Avid Unity network.
2. Copy the update software to a client in the network. Avid recommends you store your AirSpeed ISO images in the following location on the MediaManager server:

   MediaManager_name/omm/airspeed/
3. Select Setup > Software.
4. In the Server text box, type in a URL to a web page where the list of AirSpeed ISO images are located.

   For example: *MediaManager_name*/omm/airspeed/
5. Select the AirSpeed ISO image from the Available Versions list in which you want to load.
6. Click Update Version.
7. Select the appropriate dialog boxes. When the upgrade is complete, the AirSpeed will restart.

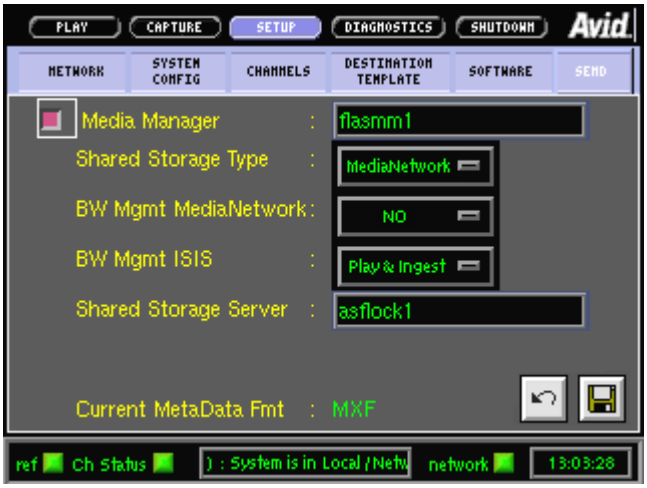
Do not interrupt the AirSpeed while the software is being updated.

Multiple AirSpeeds can be updating the software from the same MediaManager file at the same time.

Send Tab

The Send tab is used to select the destination for the media in the Avid Unity environment. It also sets the communication between the other servers on the network. The following figure shows a sample Send tab window.

Setup Button — Send



The Send tab displays the following:

- MediaManager — Select this option to configure the AirSpeed as a MediaManager client. Enter the MediaManager IP address or name in the text box.
- Shared Storage Type — Select the Avid shared storage network environment in which you are connecting the AirSpeed.
  - MediaNetwork — Select MediaNetwork from the Shared Storage Type menu if your media network is an Avid Unity™ MediaNetwork.
  - ISIS — Select ISIS from the Shared Storage Type menu if your media network is an Avid Unity ISIS™.
- BW Mgmt MediaNetwork — Select Yes or No in the bandwidth (BW) management (Mgmt) menu when Unity is selected in the Shared Storage Type menu. This option is not available when ISIS is selected an the Shared Storage Type.
  - Yes — Should be selected if you are using any combination of Avid editing systems and AirSpeed servers on the same PortServer or LANshare.

Enabling bandwidth management in the Unity environment prevents the AirSpeed from taking more bandwidth than it actually requires from the network. The network bandwidth is more evenly distributed between all the PortServer or LANshare clients when this option is enabled.

- No — Should be selected if the AirSpeed servers are the only clients on your PortServer or LANshare (no Avid editing system clients), bandwidth management is not needed. The AirSpeed servers perform the network tasks using all the available bandwidth the PortServer or LANshare has available.

- BW Mgmt ISIS — Select Play or Ingest, or Ingest Only from the BW Mgmt ISIS menu. The BW Mgmt ISIS selections are not available when MediaNetwork is selected in the Shared Storage Type menu.
  - Play or Ingest — Should be selected if the AirSpeed will be playing out or capturing media.
  - Ingest Only — Should be selected if the AirSpeed will be capturing media. The AirSpeed play out function should not be used with this setting.
- Shared Storage Server — Enter the PortServer IP address or name if working in an Avid Unity MediaNetwork environment. Enter the Virtual System Director Name if working in an Avid Unity ISIS environment.

  You must also add the AirSpeed name to the Management tab in the Avid Unity ISIS Administration software. The AirSpeed name does not appear in the Avid Unity ISIS Device window of the Administration software until the AirSpeed is restarted.

If you are not using a DNS server in your Avid Unity MediaNetwork environment, enter an IP address of your PortServer. To identify the DNS server, see "Network Tab" on page 77. A DNS server must be used in an Avid Unity ISIS environment.

- Current MetaData Fmt — Displays the metadata format of media. The metadata format is either OMF or MXF, depending on the format set in MediaManager workgroup. If the MediaManager is not detected, "NOT LOGGED IN" is displayed.

Maintenance and Troubleshooting

The AirSpeed UI provides status indicators to alert you to detected network problems. For information on what is detected and the meaning of the colors displayed in the status indicators, see "Dashboard" on page 64.

Power-On Self-Test

When you turn on the AirSpeed, it performs an internal self-test. A successful startup of the AirSpeed indicates that the internal boards are working.

The power-on self-test does not test the external interface connections.

Network Test

You can contact the AirSpeed with the ping command to see if the AirSpeed is seen by the network. To verify communication from a client system (such as a NewsCutter) which is on the Avid Unity network, obtain the IP address of the target AirSpeed.

To ping AirSpeed from a client system on the Avid Unity network:

1. Click Start > Run.
2. Type the **`ping`** command and the **`IP address`** of your AirSpeed. For example:

   `ping` *`192.168.1.101`*

   A command prompt window opens and displays the ping command and a response, if the AirSpeed is seen by the network.

   If the ping succeeds, a series of responses appears, for example:

   8 packets transmitted, 8 packets received, 0% packet loss
3. Close the command prompt window when done.

To ping a target AirSpeed from another AirSpeed on the network:

1. On the AirSpeed, simultaneously press **`Ctrl+Alt+F1`**.
2. At the login prompt type:
   - login — **`maint`**
   - password — **`mars`**
3. Type `ping` <***`AirSpeed I/P address`***>.

   If the ping succeeds, a series of responses appears, for example:

   8 packets transmitted, 8 packets received, 0% packet loss
4. Type **`Ctrl+C`** to terminate the ping.
5. Simultaneously press **`Ctrl+Alt+F3`** to return to the AirSpeed UI.

Message Log

Up to five message log files are store on the internal drive and can be reviewed on the AirSpeed display. The log file names are runa, runa.0, runa.1, and so on. The latest file is always saved as runa. The oldest file, runa4, is deleted when a new file is created.

To view the error log:

1. On the AirSpeed, simultaneously press **`Ctrl+Alt+F1`**.
2. At the login prompt type:
   - Login — **`maint`**
   - Password — **`mars`**
3. Type the following on the command line to view the log files.

   ```
   cp /var/tmp
   ```
4. Type the following to view the last log file.

   ```
   cp /var/tmp/runa
   ```
5. Simultaneously press **`Ctrl+Alt+F3`** to return to the AirSpeed UI.

Chapter 5

AirSpeed Operations

This chapter provides operating instructions and button information for the AirSpeed. The following topics are discussed:

- Power-On Functions
- AirSpeed Startup Defaults
- Button and Wheel Functions
- Operational Control Buttons
- Jog Wheel
- Shuttle Ring
- Mark IN Button
- Mark OUT Button
- RetroLoop Mode
- Deleting Clips
- Timecode Modes

Power-On Functions

The AirSpeed does not require any input to fully boot. To turn on the AirSpeed from the powered off state, use these guidelines:

- Observations during the power-on self test (POST):
  - All front panel lights come on for a period. This can be used to detect if lights are burned out or defective.
  - A splash screen appears on the UI indicating that the AirSpeed is booting and a progress bar displayed.
- If a keyboard is connected, you can press the ESC (escape) key when the splash screen is displayed to show the AirSpeed console with boot messages.

In the event a hardware failure is detected during boot, an error message is displayed in the UI. The following are the messages and their meaning:

- System disk corrupt — A problem was detected with one of the internal drives. The boot process will stop.
- Disk 3 not functional — A problem was detected with disk drive number 3. The boot process will stop.
- UI damaged and not operable — A problem was detected with the user interface (UI) circuit. The boot process will continue to boot up the AirSpeed although you might not be able to view the built-in UI and playback monitor.
- System memory is damaged or missing — A problem was detected with the internal memory. The boot process will stop.
- CPU fan non-functional — A problem was detected with the internal processor fan. The boot process will continue.
- Chassis fan non-functional — A problem was detected with the internal AirSpeed fan. The boot process will continue.

AirSpeed Startup Defaults

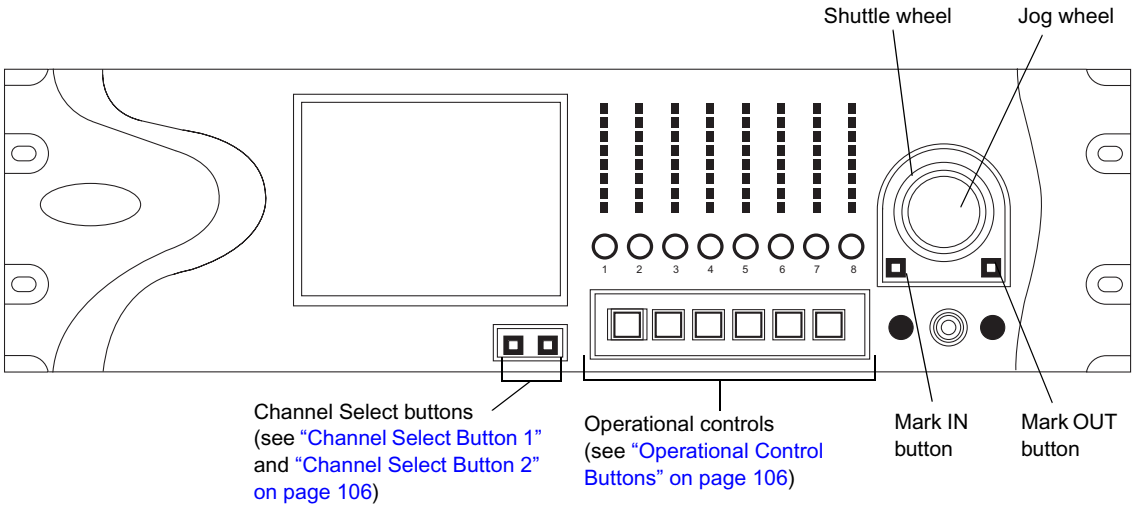
After the AirSpeed has successfully started the indicators are as follows:

- Channel Select button 1 — On
- Channel Select button 2 — Off
- Stop, Play, Record, Rewind, Fast Forward, and Locator buttons — Off
- No clips are loaded
- UI monitor — Displays the Play 1 button with the cursor on the video ID field

Button and Wheel Functions

The behavior of the AirSpeed buttons is described in this section. The following figure identifies the location of these items.

Front Panel Buttons and Wheels


Shuttle wheel
Jog wheel
1 2 3 4 5 6 7 8
Channel Select buttons (see "Channel Select Button 1" and "Channel Select Button 2" on page 106)
Operational controls (see "Operational Control Buttons" on page 106)
Mark IN button
Mark OUT button

Channel Select Button 1

When Channel Select button 1 is lit, pressing button 1 cycles you through three screens relevant to channel 1. The screen are:

- Capture mode (channel 1) — settings for capturing media
- Play mode (channel 1) — settings for play out on channel 1
- Video — view media that is being captured or playing on channel 1

When Channel Select button 1 is not lit, pressing button 1 results in the following:

- The state of the channel l buttons are displayed: Play, Stop, Fast Forward and Rewind.

  For example, press Play on channel 1 then press Channel Select button 2 and start a playing a clip on the channel 2. Then press Rewind on channel 2 and switch back to channel 1 by pressing Channel Select button 1. The Play button will be lit if the clip is still playing.

- You are returned to the same display you had on channel 1 prior to switching to channel 2.

  For example, if you are playing video on channel 1 (1 lit), press 2 (2 lit), you'll see the state of channel 2 then press 1 again (1 lit) and you are returned to the video playing on channel 1.

- The channel 2 status is displayed.

  For example, you are in channel 2 (2 is lit) and you press Play, the loaded clip plays. Then press 1 to switch to channel 1, "Ch2 play" is displayed

Channel Select Button 2

When AirSpeed is currently capturing, pressing Channel Select button 2 has no function. When button 2 is lit, pressing 2 cycles you through two screens relevant to channel two. The screens are:

- Play (channel 2) — settings for play out on channel 2
- Video — view media that is playing on channel 2

When working with HD and 1:1 uncompressed media, only single channel play out is supported. You cannot select the second play out channel from the front panel or the AirSpeed Pilot application. The Channel Select button 2 on the front panel is disabled and the second play channel selection in AirSpeed Pilot is disabled.

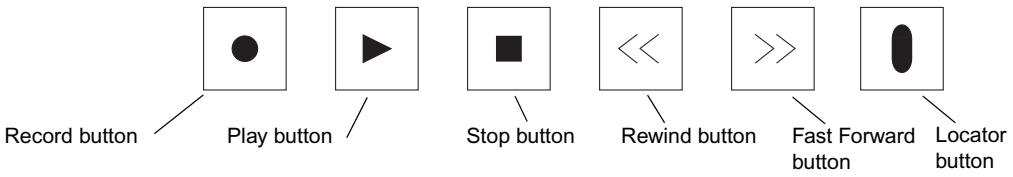
When Channel Select button 2 is not lit, pressing button 2 results in the following:

- The state of the channel 2 buttons are displayed: Play, Stop, Fast Forward and Rewind.
- You are returned to the same display you had on channel 2 prior to switching to channel 1.
- The channel 1 status is displayed.

Operational Control Buttons

The following figure shows the operational control buttons. These buttons have a backlight to help you determine the capturing state of the AirSpeed. The following sections list the functions of these buttons.

Operational Control Buttons



Play Button

When the Play button is lit:

- Pressing Play again has no function.
- Pressing Record has no function.
- Pressing Stop stops the current clip from playing (see “Stop Button” on page 109).
- Pressing Fast Forward starts a fast advance of the media (see “Fast Forward Button” on page 108).
- Pressing Rewind starts a rewind (see “Rewind Button” on page 109).
- Turning the Jog or Shuttle stops the Play and begins the Jog or Shuttle (see “Jog Wheel” on page 110 and “Shuttle Ring” on page 110).
- Pressing Mark IN sets a Mark IN point in the media (see “Mark IN Button” on page 111).
- Pressing Mark OUT sets a Mark OUT point in the media (see “Mark OUT Button” on page 111).
- Pressing the Locator button places a locator in the frame being played (see “Locator Button” on page 109).
- When a clip is loaded on a channel (1 or 2), pressing Play begins a the play operation.
- If you press Play and there is no clip loaded for the selected channel, “No clip loaded” is displayed in the UI dashboard.

Record Button

When the AirSpeed is capturing, the red Record button is lit.

- Pressing button 2 has no function.
- Pressing button 1 functions as described in the “Channel Select Button 1” on page 105.
- Pressing Record again, Play, Rewind, Fast Forward, Jog or Shuttle has no function.
- Pressing Stop stops the current capture and displays the current clip loaded (see “Stop Button” on page 109).
- Pressing Mark IN sets a Mark IN point in the media being captured (see “Mark IN Button” on page 111).
- Pressing Mark OUT sets a Mark OUT point in the media being captured (see “Mark OUT Button” on page 111).
- Pressing Locator places a locator in the frame being captured (see “Locator Button” on page 109).

- When a clip is playing on either channel, pressing Record has no function. The UI dashboard displays “System is in Play mode.” You must stop playing media before you can capture.
- Each time a capture is initiated, the values from the selected template are used. If no template is selected when a capture is started using the default template.
- If Record is pressed and no clip is queued, and no play operation is active, a capture begins regardless of what is on the display.
- If play channel 2 button is lit when a capture is started, 2 turns off and 1 lights.
- A capture cannot start if a clip is loaded in either playout channel.

  The UI and playback monitor displays the media mode of the current session being captured.

Fast Forward Button

AirSpeed is fast forwarding when the button is lit. Regardless of what is on the UI monitor (video, Play 1, Play 2, or Record) when Fast Forward is pressed, the selected channel (1 or 2) fast forwards the loaded clip.

- If the AirSpeed is capturing, pressing Fast Forward has no function.
- If the AirSpeed is playing, pressing Fast Forward turns off Play mode and begins a Fast Forward.
- If the AirSpeed is idle and there is a clip loaded on the selected channel, pressing Fast Forward begins a Fast Forward.
- If there is no clip loaded when Fast Forward is pressed, no function is performed.
- If Fast Forward is lit (performing a fast forward):
  - Pressing Fast Forward again has no function.
  - Pressing the Rewind button turns Fast Forward off and begins a rewind.
  - Pressing Play turns Fast Forward off and starts Play from where Fast Forward stopped.
  - Pressing Stop stops the Fast Forward.
  - Using Jog or Shuttle stops the Fast Forward and begins the jog or shuttle operation.
  - Pressing Mark IN has no function.
  - Pressing Mark OUT has no function.
  - Pressing Locator has no function.
  - Pressing button 1 or 2 operates as described in “Channel Select Button 1” on page 105 or “Channel Select Button 2” on page 106.

Rewind Button

Performs the same actions as the Fast Forward button but in the reverse direction.

Stop Button

When a playing clip or capture is stopped, the Stop button is lit.

- If the AirSpeed is idle and there is no clip loaded on the selected channel, the Stop button is not lit.
- If the AirSpeed is idle and there is a clip loaded on the selected channel, the Stop button is lit.
- If the AirSpeed is in RetroLoop mode (Fast Forward, Rewind, and Record lit) and Stop is pressed, the Record light turns off and RetroLoop mode ends. The Stop light turns off and the RetroLoop is cleared.
- When Stop is lit:
  - Pressing Stop twice unloads the loaded clip and turns the Stop light off.
  - Pressing Stop once has no function.
  - Pressing Rewind in Play mode rewinds the loaded clip.
  - Pressing Fast Forward Play mode fast forwards the loaded clip.
  - Pressing Play plays the loaded clip.
  - Pressing Fast Forward and Rewind together will not start RetroLoop mode because a clip is loaded.
  - Pressing Record does nothing.
  - Turning the Jog or Shuttle performs jog and shuttle operations.
  - Pressing Mark IN or Mark OUT places a Mark IN or Mark OUT point in the clip.
- Pressing Stop when Play, Rewind, Fast Forward, or Record are lit stops the function.

Locator Button

Up to 8 locators can be set in each clip. The Locator button functions as follows:

- If AirSpeed is idle and no clip is loaded on the selected channel (Stop is not lit), the Locator button has no function.
- If AirSpeed is in Play or Capture mode with a clip loaded, pressing the Locator button adds a locator to the clip.
- If AirSpeed is in RetroLoop mode when the Locator button pressed, the AirSpeed enters Capture mode and a locator is added.

- Pressing the Locator button while Fast Forward, Rewind, Shuttle, or Jog is active (Play mode functions), no function is performed.
- Pressing the Locator button places a locator whenever permitted, regardless of what is on the display.

Jog Wheel

The Jog wheel functions as follows:

- If AirSpeed is idle and no clip is loaded on the selected channel (Stop is not lit), Jog has no function.
- If the AirSpeed is idle and a clip is loaded on the selected channel (Stop is lit), turn the Jog wheel to advance or rewind the current clip. The timecode appears on the display. The Stop button remains lit. A “J” is shown on the display.
- If AirSpeed is performing a Play, Fast Forward, or Rewind and the Jog is turned, AirSpeed will first Stop (Stop lit) then begin a Jog.
- While capturing, turning the Jog wheel has no function.
- Jog continues if any button on the front panel is pressed when AirSpeed jogging.

Shuttle Ring

The Shuttle ring functions as follows:

- If the AirSpeed is idle and no clip loaded on the selected channel (Stop is not lit), the shuttle knob has no function.
- If capturing, turning the shuttle wheel has no function.
- If the AirSpeed is idle and a clip is loaded on the selected channel (Stop is lit), turn the shuttle wheel to advance or rewind the current clip. The timecode appears on the display. The Stop button remains on. A Shuttle direction indicator is shown on the display.
- If AirSpeed is performing a Play, Fast Forward, or Rewind and the Shuttle is turned, AirSpeed will first Stop (Stop lit) then begin a Shuttle.
- Shuttle continues if button 1, button 2, Play, Record, Rewind, Fast Forward, Stop, Mark IN, Mark OUT or Locator is pressed when AirSpeed is shuttling.

Mark IN Button

The Mark IN button functions as follows:

- If the AirSpeed is idle and no clip is loaded on the selected channel (Stop button is not lit), pressing Mark IN has no function.
- When in Play mode and Mark IN is pressed, a Mark IN point is placed on the clip. The timecode appears on the display.
- When in Capture mode and Mark IN is pressed, a Mark IN point is placed on a subclip. The timecode appears on the display.
- When in Fast Forward, Rewind, or Jog modes, no function is performed when Mark IN is pressed.
- Clear the Mark IN and Mark OUT points by simultaneously pressing and holding Mark IN and Mark OUT for a couple of seconds.
- If a clip is loaded with a Mark IN point, the clip plays from the Mark IN point forward to the Mark OUT point.

Mark OUT Button

The Mark OUT button has similar functionality as the Mark IN button with the exception of RetroLoop mode (see “RetroLoop Mode” on page 112). Mark OUT has no function in RetroLoop mode.

- If the AirSpeed is idle and no clip is loaded on the selected channel (Stop button is not lit), pressing Mark OUT has no function.
- If the AirSpeed is idle and a clip is loaded on the selected channel (Stop is lit), pressing Mark OUT functions as follows:
  - If there is no Mark IN point, no function is performed.
  - If there is a valid Mark IN point, a Mark OUT point is indicated on the display with the same timecode as the Mark IN.
- When in Play mode and you press Mark OUT without a Mark IN point, no function is performed.
- When in Capture mode, pressing Mark OUT functions as follows:
  - If there is no Mark IN point, no function is performed.
  - If there is a valid Mark IN point, a Mark OUT point is indicated on the display with the correct timecode and a subclip is created.
- When in Fast Forward, Rewind, or Jog modes, no function is performed when Mark OUT is pressed.

- Clear the Mark IN and Mark OUT points by simultaneously pressing and holding Mark IN and Mark OUT for a couple seconds.
- If a clip is loaded with a Mark IN point, the clip plays from the Mark IN point forward to the Mark OUT point.
- When in RetroLoop mode, pressing Mark OUT has no function.

RetroLoop Mode

When Record and Rewind buttons are lit, AirSpeed is in RetroLoop mode. You cannot enter RetroLoop mode if a clip is loaded.

To enter RetroLoop mode:

- Press the Fast Forward and Rewind buttons simultaneously.

To start the capture in RetroLoop mode:

- Press Record to begin a normal capture preserving the RetroLoop media.
- Press Locator to begin a normal capture preserving the RetroLoop media and adding the Locator.

To exit RetroLoop mode:

- Press the Stop button.

When AirSpeed is in Play, Record, Rewind, or Fast Forward modes, RetroLoop cannot be initiated. While in RetroLoop mode:

- Pressing Play has no function.
- Pressing Stop ends the RetroLoop mode and enters Stop mode with a clip loaded (Stop lit). See “Stop Button” on page 109.
- Pressing button 1 functions as described in “Channel Select Button 1” on page 105.
- Pressing button 2 has no function.
- Pressing Fast Forward has no function.
- Pressing Rewind has no function.
- Pressing Mark OUT has no function.
- Using the Jog or Shuttle has no function.

Deleting Clips

You can manually delete clips from the AirSpeed UI.

You can also delete clips from the Avid Pilot, Avid FlightPlan, and AirSpeed CountDown applications; see the Help for more information.

To delete clips in the Play button:

1. Click the Play button in the AirSpeed UI.
2. In the Video ID text box, enter the ID for the clip that you want to delete. Press Enter to accept.
3. Click the Delete button to display the Delete Clip dialog box.
4. Click Yes to confirm the delete request.

To delete clips in the Capture button:

1. Click the Capture button in the AirSpeed UI.
2. In the Video ID text box, enter the ID for the clip that you want to delete. Press Enter to accept.
3. Click the Delete button to display the Delete Clip dialog box.
4. Click Yes to confirm the delete request.

Timecode Modes

The following topics are discussed in this section:

- Clip Duration Verses Total Duration
  - Clip Absolute Timecode Mode
  - Clip Relative Timecode Mode
  - Virtual Timecode Mode
- Timecode Values for Network Links to Clips

AirSpeed provides VITC and LTC timecode functionality to both capture and playback. These timecode values are always preserved.

All timecode operations are identical in 30 Frame (525/60) and 25 Frame (625/50) rate television systems except that Drop-Frame mode is not applicable in 25 Frame operation.

Clip Duration Verses Total Duration

All clips are described by two different duration values, Clip Duration and Total Duration. Total Duration is the duration of media in an event from first frame of recorded video to last frame of recorded video (perhaps including unrecorded black regions, as described under Virtual timecode below). Clip Duration is the difference between the Mark OUT and the Mark IN. The Clip Duration is the length of time the event will play under automation control.

You can view the Clip Duration and the Total Duration by loading the desired clip into a Capture/Monitor controller.

AirSpeed supports three types of user timecode indexes called “clip absolute,” “clip relative,” and “virtual tape.”

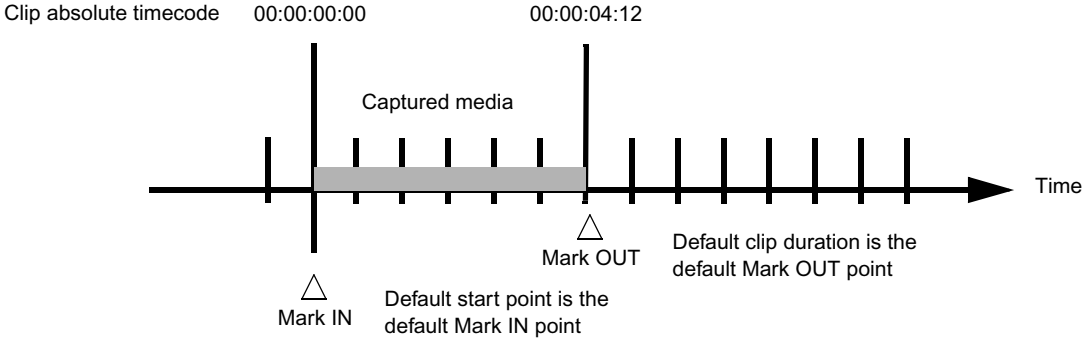
Clip Absolute Timecode Mode

You can use Absolute mode when you select it on the Capture/Monitor panel (or in the Pilot application).

When you use Clip Absolute Timecode, the timecode is, by definition, zero at the beginning of any capturing. When capturing is stopped, the duration of the clip is equal to the duration of the event from the beginning to the end of the capturing, and is an absolute index into an clip.

The following figure shows Clip Absolute timecode mode before any Mark IN or Mark OUT points have been set.

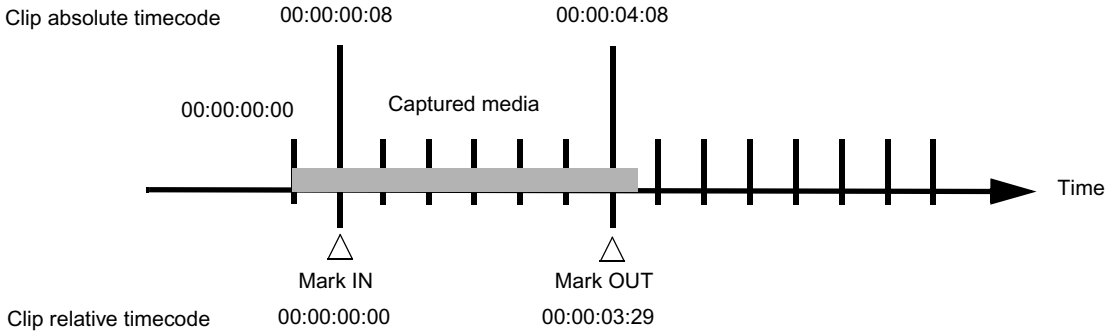
Absolute Timecode



Clip Relative Timecode Mode

Clip Relative timecode is exactly the same as Clip Absolute until you set a Mark IN or a Mark OUT to move the beginning or end of an event's playback. After you have selected a Mark IN value, the absolute timecode can be any value at that IN point, but its relative timecode is 0. Similarly, once you select a Mark OUT value, the system recalculates the Clip Duration based on the difference between the IN and OUT points.

Relative Timecode



In the example above, Mark IN has been set to :08 after the beginning of the capture and Mark OUT has been set to 4:08. Thus, the last playable frame of media is at 3:29 (from the Mark IN) and the clip duration is 4:00.

When in Absolute Timecode mode, the Mark IN position becomes the beginning of the playable media and the Mark OUT, the end. In order to operate outside of these points, you must either clear the Mark or change to another timecode index such as Virtual.

On the Capture/Monitor user interface, when in Clip Absolute Mode, Mark IN and Mark OUT values are expressed in Clip Absolute values, while the current position indicator is shown in Relative timecode values.

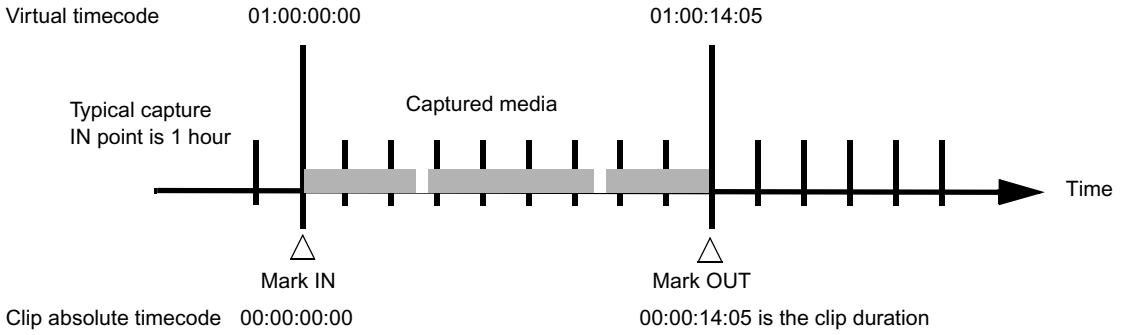
Relative timecode is always reported to controlling automation systems via the VDCP protocol.

Virtual Timecode Mode

Virtual timecode mode provides a timecode space that is more useful for editing applications because it allows for preroll before the beginning of a clip and post roll after the end. Additionally, Virtual mode supports events constructed of any number of contiguous or noncontiguous captures.

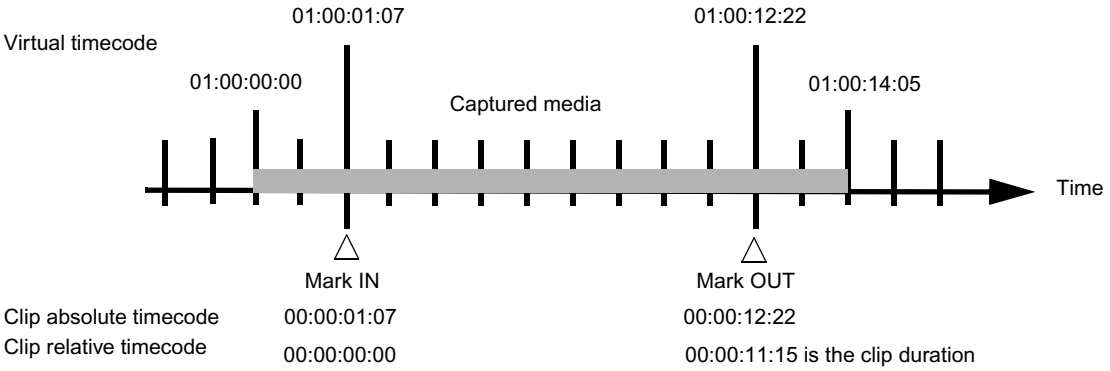
Conceptually, Virtual timecode provides a 24-hour space (or “virtual tape”) in which to record media. This virtual tape initially appears to the user as “pre-striped” or containing black/silence. The default Mark In value and the default beginning of Virtual Tape media are both 1 hour (01:00:00:00). The default Mark OUT is the end of the capture. The following diagram shows an example where three captures are made, separated by a few seconds. These gaps will play back in black and take up no room on the array.

Virtual Timecode



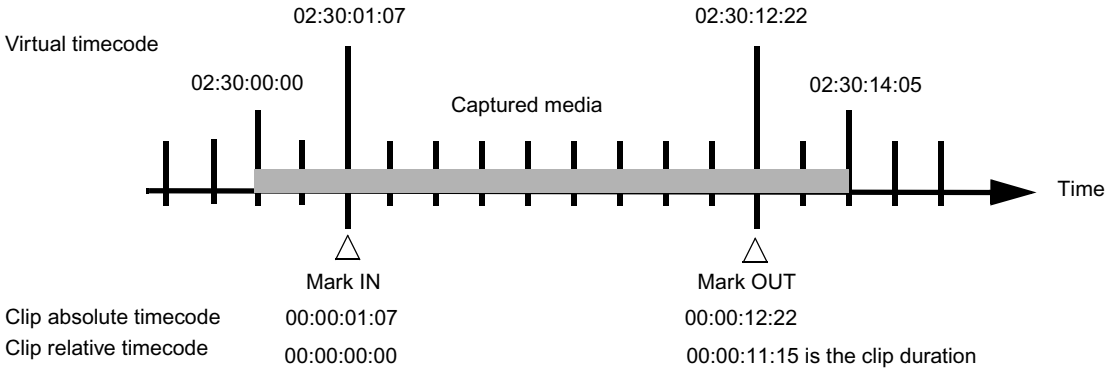
Having made a virtual tape event, while still in virtual mode, you can make marks anywhere within or beyond the range of the recorded media. You view those mark values in either Virtual or Absolute mode as shown in the following diagram:

Virtual and Absolute Timecode



Finally, you can move the default Record In point in Virtual Timecode mode at any time by cueing to a different location and commencing a capture (or cueing to a point in time prior to existing media if any exists in the event). Doing so maps an event onto a different region of the virtual tape space as shown in the following diagram. This example is identical to the previous one, only capture started at 2:30:00:00 instead of the default 1:00:00:00.

Virtual and Absolute Timecode Started Later



On the Capture/Monitor and Pilot user interfaces, you can select whether you are operating in Virtual or Absolute Timecode mode. Mark IN and Mark OUT values as well as the current position indicator are expressed in the timecode values appropriate to that selection, as shown in the preceding examples. Mark IN and Mark OUT have no effect on playing or stopping playout of media from these interfaces when in virtual mode. They only limit the extents of the playable media in Absolute mode.

Virtual Timecode is always reported to controlling devices when under the Sony protocol.

Timecode Values for Network Links to Clips

When you access a clip from a NewsCutter product, the system checks to determine where in Virtual Tape time that clip is located.

Since default NewsCutter sequences are created with the beginning at time 00:00:00:00, when AirSpeed receives such an event, it is placed at the default Virtual time of 01:00:00:00 (one hour) for convenience in subsequent editing operations.

When you create a NewsCutter clip with a starting time other than zero, the system assumes that the non-zero time value needs to be preserved for later editing or for establishing Mark IN and Mark OUT values. Thus, when AirSpeed receives such an event, it is placed in Virtual time at the same spot as it was on the NewsCutter timeline.

The reverse is true also when clips are linked from AirSpeed to the NewsCutter. Any event with an IN point (in Virtual Tape time) of 01:00:00:00 creates NewsCutter footage with a start time of zero. Any other event IN point creates footage with start time equal to the IN point.

Chapter 6

AirSpeed Studio and Playout

This chapter describes the AirSpeed Studio functionality in the Avid Unity workgroup environment. It also describes the steps in configuring the Studio.

AirSpeed Studios are not supported in the Macintosh environment.

Studio Concept

The Studio consists of a group of AirSpeeds that can share a playout request. When media is sent to the Studio, all the AirSpeeds in the Studio are sent the media. Each AirSpeed in the Studio is capable of performing the playout even if some of the Studio members are offline.

The Avid editing system sending a sequence to the Studio looks at the information listed in the TMClient.ini tab of the Transfer settings to identify the Studio and its members. The Studio information listed in the TMClient.ini tab is the aggregate of all the AirSpeed members in the Studio.

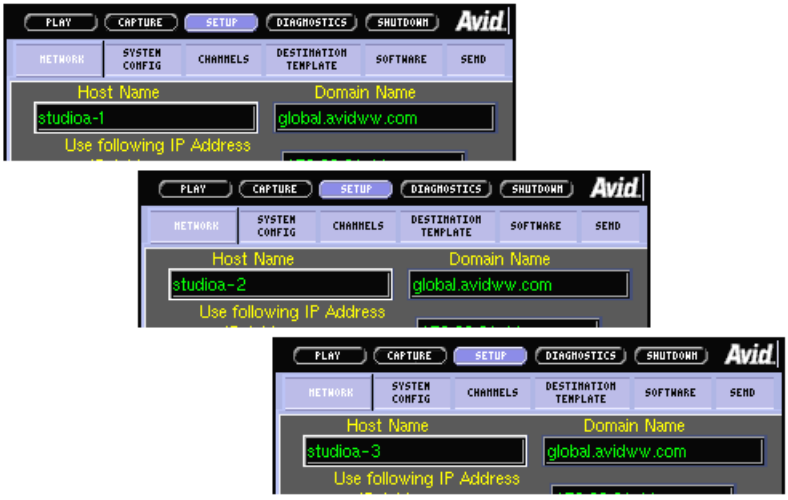
You can create multiple Studios in a workgroup environment. Each Studio is created using the same process.

Creating the Studio on the AirSpeed

You create the Studio by naming up to five AirSpeeds with a common Host Name and a unique number after the name. The name and the number are separated with a dash (–). Do not add any spaces between the name, dash, and number. Also, do not use more than one dash in the name. The Studio consist of AirSpeeds using the naming format of *studioname*–1 through *studioname*–5, which allows the Avid editing system to easily locate the members of the Studio.

Name the AirSpeed in the Setup > Network > Host Name text box of the AirSpeed UI. For more information on the network settings, see “Network Tab” on page 77. The following figure is an example of how you would name three AirSpeed members to create a Studio.

Three AirSpeed Members in a Studio



The first AirSpeed name in the Studio must include the “–1” in the name. The second AirSpeed you add to the Studio must include “–2” in the name, and so forth. You cannot skip a number in the Studio name. For example, you must use *studioname*–1, *studioname*–2, *studioname*–3 and cannot use *studioname*–1, *studioname*–3, and *studioname*–4.

Adding the Studio to Your WorkGroup

Studio support (including status) needs the Avid AirSpeed I/O Peripheral applications and the Editor Ingest and Playback Support installed on the Avid editing system. Uninstalling either removes Studio functionality from the Avid editing system.

The Studio is configured in the “TMClient.ini” tab of the Avid editing application’s Transfer setting dialog box. A Studio is identified using the following naming convention in the TMClient.ini tab:

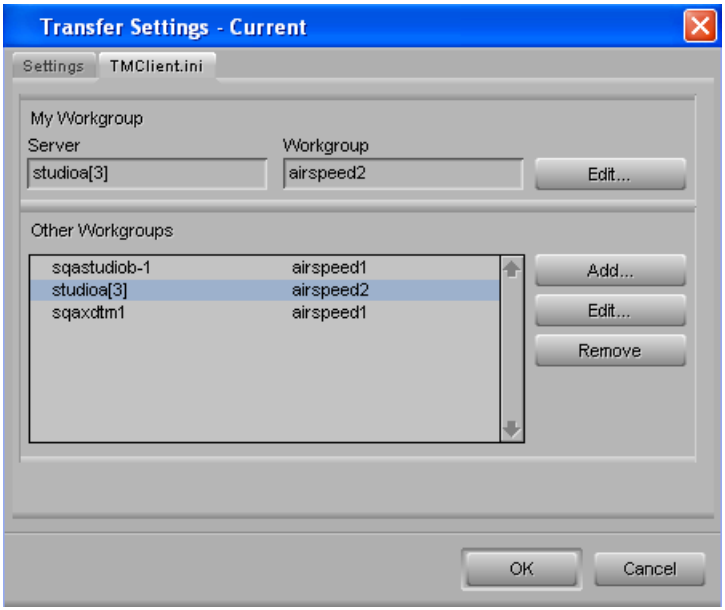
studioname[*N*]

In this example, *studioname* is the name entered as the Host Name on each AirSpeed in the Studio, and *N* represents the number of members in the Studio.

This naming convention distinguishes the AirSpeed Studio and all other TransferManager Servers (including single AirSpeeds). AirSpeed and Studio names must also be added as a client on the TransferManager Server Configuration Window.

Invalid or inactive playback server name entries in TMClient.ini can delay the Avid editor startup.

Adding the Studio to the Transfer Server List



To add a Studio to an Avid editing system:

1. In the Avid editing application, click the Settings tab in the Project window.
2. Double-click Transfer in the Settings scroll list.

   The Transfer Settings window opens.
3. Click the TMClient.ini tab.
4. Click Add.

   If changing the Studio name, click Edit.
5. Type the Studio name and the number of members in brackets "[ ]" in the Server text box.

   The number in brackets "[*N*]" identifies how many AirSpeed members are in the Studio. Using the figures in this section as an example, type *studioa*[3] in the Server text box. The AirSpeed members are *studioa*–1, *studioa*–2, and *studioa*–3.

If you are adding an individual AirSpeed to the Send to Playback list, type the AirSpeed Host Name in the Server text box as it appears in the Setup > Network tab of the AirSpeed UI.

6. Type the name of your workgroup in the Workgroup text box. This can be any name you give your workgroup. This entry is case sensitive.
7. Click OK.

Using the Studio

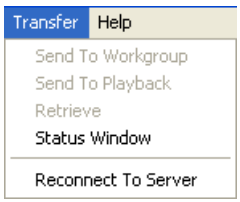
When the Avid editing application starts and connects to the Avid Unity environment, the playback devices are made available to the Avid editing system. These devices are displayed in the Transfer > Send To Playback menu. If your Studio was not available when you started the Avid editing application, select Select Transfer > Reconnect To Server.

Connect to Playout Server or Studio

The Studio is defined in the TMClient.ini tab on the Avid editing system. The Avid editing system determines if the playback device is a Studio by the naming convention; see "Adding the Studio to Your WorkGroup" on page 120. This determination happens when the Avid editing application is started. If you are already running the Avid editing application and want to make sure the playback servers are available, select "Reconnect To Server" in the application.

To connect or reconnect to transfer server:

- Select Transfer > Reconnect to Server.

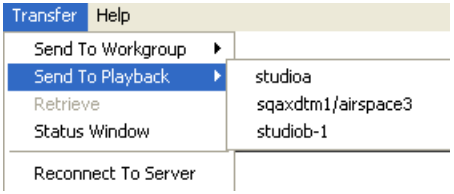


Send to Playout Server or Studio

The Studio name appears in the Avid editing application's Send To Playback list when you are connected to the studio. When a sequence is ready for playout, highlight the sequence and send it to the Studio in the playback list.

To send a sequence to a Studio, do one of the following:

- Right-click on the selected sequence and select Send to Playback > *studioname*.
- Highlight the sequence in your bin, and select Transfer > Send to Playback > *studioname*.



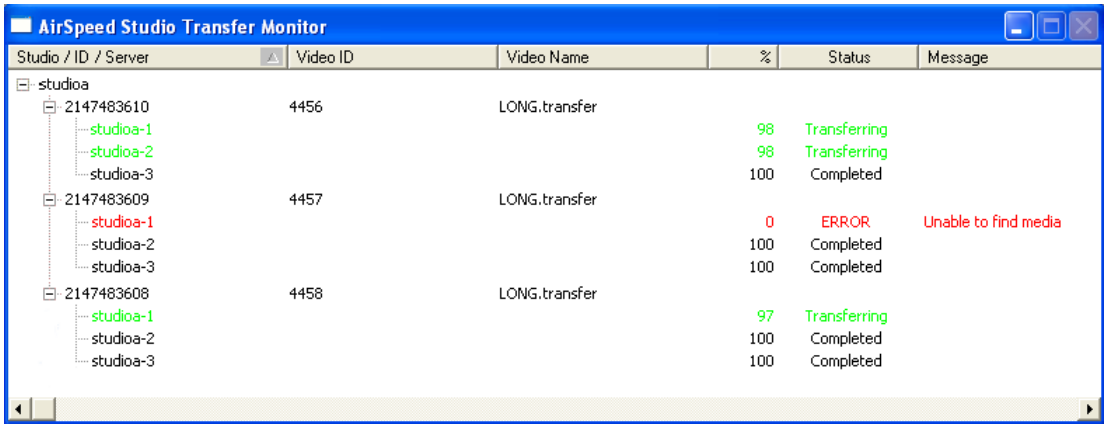
The Send To Playback list is not automatically refreshed with network changes. If the Studio has become unavailable, the Studio name remains in the Avid editing application's Send To Playback list. To check if the Studio is still available, select Transfer > Reconnect To Server. If the Studio name is removed from the Send To Playback list, all of the Studio members are no longer unavailable. If you send a sequence to a Studio that is unavailable, the result is a failed transfer.

As long as one member of the Studio is available, the Studio name appears on the Send To Playback list and the transfer is successful. A Studio is only unavailable when all of its members are unavailable.

Monitoring Studio Transfers

After you have sent a sequence to playback within the Avid editing application, you can monitor the transfer in the Avid editing application. The AirSpeed Studio Transfer Monitor dialog box automatically appears on the Avid editing system the first time you send a sequence to a Studio. The dialog box first appears minimized in the taskbar. When you click on the minimized dialog box in the taskbar, the dialog box opens and stays on top of the Avid editing application. This dialog box can be minimized again, but cannot be closed. The following figure shows the AirSpeed Studio Transfer Monitor dialog box as it appears on the Avid editing system.

AirSpeed Studio Transfer Monitor Dialog Box



The dialog box provides a tree listing of the AirSpeed members in the Studio with the transfer results. The AirSpeed Studio Transfer Monitor dialog box is updated in the Avid editing application as the media transfers. A Studio monitor cannot be used to retry or pause transfers.

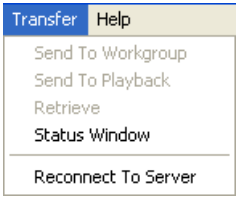
Transferred items are listed in the dialog box until you quit the Avid editing application or clear the list using the Transfer Status window options. For information on the Transfer Status window, see "Transfer Status Window" on page 124.

Transfer Status Window

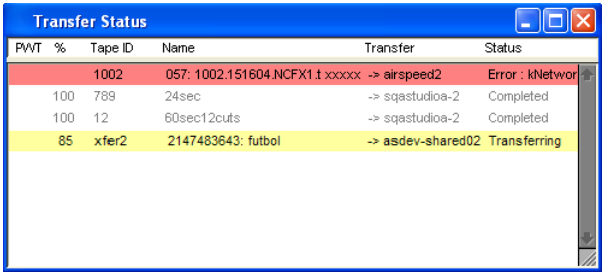
The Transfer Status window displays all TransferManager activity.

To open the Transfer Status window:

- Select Transfer > Status Window.



The Transfer Status window opens.


Transfer Status
PWT % Tape ID Name Transfer Status
1002 057: 1002.151604.NCFX1.t xxxxx -> airspeed2 Error : kNetwor
100 789 24sec -> sqastudioa-2 Completed
100 12 60sec12cuts -> sqastudioa-2 Completed
85 xfer2 2147483643: futbol -> asdev-shared02 Transferring

Transfers display as one entry in Transfer Status window. Although multiple sequences might be included in the transfer, the window displays status for the entire transfer. If one or more members of the Studio are not available, the transfer immediately displays an Error with corresponding text. An Error is displayed even if other Studio members are successfully transferring.

If you have administrative privileges or you initiated the transfer, you can cancel, retry, pause, or resume transfers. The following table explains the Status conditions.

TransferManager Status Descriptions

Status	Description	User Options
Transferring	At least one transfer is running and *none* have failed.	Pause or cancel the transfer.
Paused	All transfers are paused.	Resume or cancel the transfer.
Error (plus information indicating the error)	At least one transfer has failed. As soon as one transfer fails, regardless of the state of any of the other transfers, the transfer state is failed.	Retry or clear the transfer.
Pending	All transfers are pending.	Cancel the transfer.
Completed	All transfers have completed with no failures.	Clear the transfer.
Canceled	All transfers have been canceled.	Clear the transfer.

Right-click the status line of a particular transfer to select the user options.

Chapter 7

AirSpeed Operations with Other Avid News Applications

This chapter provides operating instructions for the AirSpeed when configured to work with the Avid NewsCutter product. The following topics are discussed:

- Transferring Sequences from an Avid NewsCutter Product
- Using Avid Pilot to Load Clips into a NewsCutter Product's Capture Tool
- Using FlightPlan
- Remote Operations

Transferring Sequences from an Avid NewsCutter Product

This section provides instructions for transferring completed sequences from an Avid NewsCutter product to an Avid AirSpeed system.

These are the media files containing audio and video information. When sequences are transferred to the AirSpeed, they are automatically "flattened," that is, all transitions are rendered and all non-linear edits become one continuous piece of media.

Transfer Setup Checklist

❑ Ensure that there is an appropriate network connection between the desired NewsCutter product / AirSpeed combination between which files are to be transferred, as described in "Installation" on page 39.

❑ Ensure that communication is configured and tested on both the AirSpeed and NewsCutter product sides, as described in "Network Tab" on page 77.

Transferring Sequences from a NewsCutter Product to AirSpeed

To transfer sequences from a NewsCutter product to the AirSpeed:

1. After completing the sequence, right-click the sequence in the Timeline.
2. Select Post to Playback.

   A dialog box opens, asking you the Name and Tape ID of the sequence you want to transfer.
3. If it is not already filled in, enter the Name and Tape ID of your sequence.
4. Click OK to begin the transfer.

   A status window appears indicating the time remaining to transfer the story.

   Once the status bar disappears, a dialog box appears confirming that the story has successfully transferred to the server.

Using Avid Pilot to Load Clips into a NewsCutter Product's Capture Tool

This section provides instructions for loading a clip into the Avid NewsCutter product's Capture tool. Before you send a sequence to an AirSpeed, follow the checklists below.

AirSpeed Setup Checklist

❑ Ensure that the AirSpeed is properly installed, with all audio, video ports, and networking connected according to your specific requirements. For details, see "Installation" on page 39.

❑ Ensure that the AirSpeed is properly configured to communicate with the Avid Unity workgroup environment. For details, see "Configuring the AirSpeed" on page 75.

NewsCutter Product Setup Checklist

❑ Ensure that the NewsCutter product is properly installed, with all audio and video ports and networking connected according to your specific requirements. Contact your Avid representative for details regarding proper NewsCutter product installation.

❑ Configure the NewsCutter product to communicate with an AirSpeed. See the NewsCutter product documentation.

❑ Verify communications between the NewsCutter product and AirSpeed. For details, see “Network Test” on page 100.

❑ Verify that Avid Pilot is properly installed on your system. See the installation instructions provided with the Avid Pilot software.

Configuring AirSpeed to Work with a NewsCutter Product using Avid Pilot

The AirSpeed can be used as a video source for a NewsCutter product. Note the following:

- The AirSpeed functions like a standard VTR to the NewsCutter product.
- Only one NewsCutter product can be accessing any one channel of the AirSpeed at a time.
- The NewsCutter product captures the video via the SDI video input on the NewsCutter product.
- No media travels over the network. The network connection is used only to allow Avid Pilot to communicate with the AirSpeed.

Loading AirSpeed Clips into the Capture Tool

To load clips that were recorded onto an AirSpeed into the NewsCutter product’s Capture tool:

1. Ensure the NewsCutter application is running.
2. Start the Avid Pilot application on the NewsCutter or other Windows system.
3. From the Server menu, select the Server Name.
4. Select the Server Port to which you are physically connected (Audio, Video and Control) and from which you want to capture.
5. Select the Video ID of the clip you want to load.
6. Return to the NewsCutter application and control the AirSpeed using the NewsCutter Capture tool.

Using FlightPlan

This section provides instructions for copying or moving clips from an Avid AirSpeed system to a NewsCutter product in the Avid Unity environment.

Transferring Clips From AirSpeed to NewsCutter Product

To transfer clips from any connected AirSpeed to a NewsCutter product:

1. From a NewsCutter product, start the FlightPlan application.
2. In NewsCutter, configure the transfer settings:
   a. Click the Settings tab in the Project window and double-click Transfer in the Settings scroll list.
   b. Click the TMClient.ini tab.
   c. In the Server text box, type the AirSpeed Server name.
   d. In the Workgroup text box, type the name of the server's workgroup. If the server is not already part of the workgroup, type a name for the workgroup. This entry is case sensitive.
   e. Click OK.
3. From the FlightPlan Server list, select the AirSpeed Server on which the event or group of events you want to copy is located. If the AirSpeed Server you want does not appear in the list, see the FlightPlan documentation for adding servers to this list.

   The list of available clips on the connected system appear in the window as soon as the connection is successfully completed.
4. Select the event or group of events to be moved or copied by clicking, Shift+clicking, or Ctrl+clicking the events listed in the window. To select all the events in the list, select Edit > Select All.
5. Drag the selection to a NewsCutter bin.

   The NewsCutter client copies the clip to a Avid Unity workspace.

Remote Operations

Prior to operating the AirSpeed by remote control, ensure that the following hardware connections are made, and that the following system configuration functions are set.

- Virtual Network Computing
- General Remote Control Setup
- Remote Control from an Automation System
- Remote Control from a System Using Sony Protocol (such as an Edit Controller)
- Remote Control from Any Device Providing Contact Closure

Virtual Network Computing

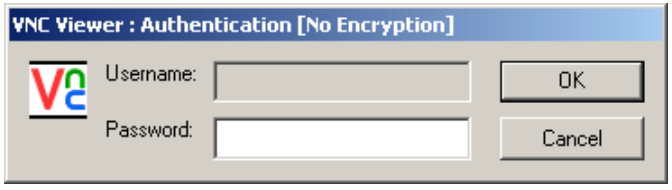
An application called Virtual Network Computing (VNC) provides access to the AirSpeed UI from a remote computer. This cross-platform software allows you to perform all keyboard and mouse functions on the AirSpeed using a network connection. Multiple VNC sessions can be run simultaneously on a single computer. Each VNC session displays a single AirSpeed UI.

Download the VNC Viewer client application and documentation from www.realvnc.com.

To access AirSpeed via VNC Viewer over the network:

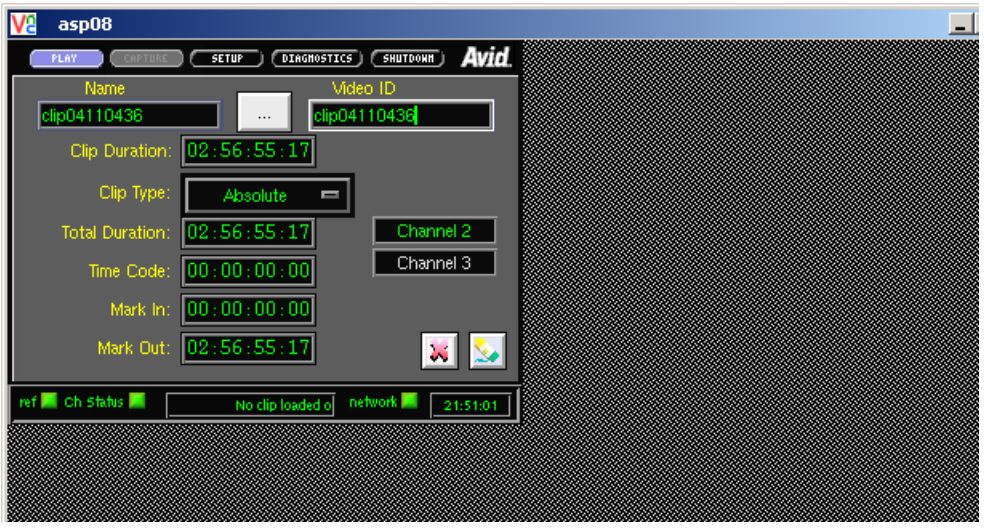
1. Download and install the VNC Viewer software.
2. Start VNC Viewer.
3. In the VNC Viewer: Connection Details dialog box, type the AirSpeed name or the IP address of the AirSpeed, and click OK.

4. At the VNC Viewer: Authentication dialog box type **`mars`** in the Password text box and click OK.



The default password for VNC is ***mars****, you can change the password in the AirSpeed UI > Setup > System Config tab, see* *"Setting Passwords to Access AirSpeed" on page 84**.*

The AirSpeed UI displays in a window on your local system.



Whatever process that is currently being performed on the AirSpeed is displayed in the window. You can click on any button, tab, and enter data from your remote system to control and configure the AirSpeed.

The default VNC settings causes some buttons in the AirSpeed UI to appear dimmed and the text not be visible. You correct this by changing the color setting in the VNC options.

To change the color setting:

1. Right-click on the VNC window title bar.
2. Select Options.
3. Click the Colour/Encoding tab.
4. Select Colour level to Medium or Full.
5. Click the Defaults tab.
6. Click Save As Defaults and click OK to close the window.

All buttons and text in the AirSpeed UI are now visible each time you start the VNC application.

General Remote Control Setup

❑ Ensure that the video format and audio source are properly selected in the AirSpeed. For instructions, see “System Config Tab” on page 78.

❑ Ensure that each desired function (Record/Playlist or Capture/Monitor) is properly configured for your application. See “System Config Tab” on page 78.

❑ If required for your specific configuration, ensure that each playout channel’s component analog outputs are set to the desired format. For details, see “Channels Tab” on page 85.

❑ Ensure that each playout channel’s VITC output line and record channel’s VITC input line is properly set. See “Channels Tab” on page 85.

❑ Ensure that each playout channel’s output timing is properly set. For details, see “Channels Tab” on page 85.

❑ If required for your specific configuration, ensure that the network parameters are set properly in the AirSpeed UI. For details, see “Network Tab” on page 77.

Remote Control from an Automation System

The rear panel includes two remote connectors.

- The Remote 1 port is normally used for remote control capability for the primary channel (Capture mode or playout on channel 1).
- The Remote 2 port is normally used for remote control capability for the secondary channel (playout on channel 2).

❑ Ensure that each configured panel (automation protocols are available for Capture and Playlist controller panels) has selected an appropriate automation protocol for your application (VDCP or Sony). See “System Config Tab” on page 78.

❑ For each rear panel in your AirSpeed configuration, ensure that the automation system’s RS-422 port(s) are properly connected to the desired remote port(s) on the rear panel.

❑ Repeat the above item for *each channel* that you want to control from an automation system. For RS-422 wiring details, see “Remote 1 and Remote 2” on page 145.

Remote Control from a System Using Sony Protocol (such as an Edit Controller)

The rear panel includes two remote connectors.

The Remote 1 port and Remote 2 port both provide Sony protocol control capability for both primary and secondary channels. Use either port.

❑ Ensure that each configured panel (Sony is currently only available for the Capture/Monitor panel) has selected the Sony protocol item in that panel's pop-up selector. See "System Config Tab" on page 78.

❑ For each rear panel in your AirSpeed configuration, ensure that the editing system's RS-422 port(s) are properly connected to the desired remote port(s) on the rear panel.

❑ Repeat the above item for *each channel* that you want to control from an automation system. For RS-422 wiring details, see "Remote 1 and Remote 2" on page 145.

Remote Control from Any Device Providing Contact Closure

The rear panel includes one GPIO (General Purpose Input/Output) connector. This connector provides 12 control functions (8 inputs, 4 outputs).

❑ For each rear panel in your AirSpeed configuration, ensure that the controlling device's GPIO port is connected to the GPIO connector on the rear panel.

❑ For each rear panel, ensure that the proper GPIO "pin" connections are made. For GPIO wiring details, see "GPIO" on page 147.

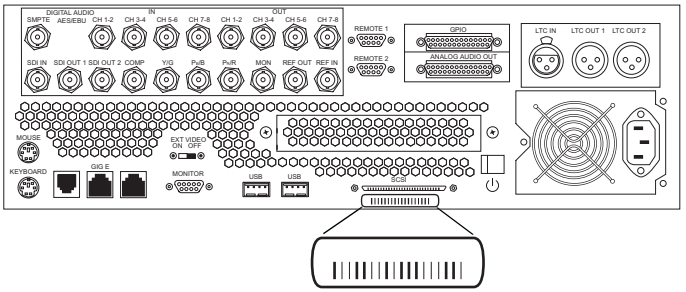
❑ For GPIO control, ensure that all GPIO triggers are programmed properly from the external device.

GPIO functions operate differently in every environment and may have unexpected latencies. GPIO operation cannot be guaranteed and must be tested for your specific application.

Appendix A
Chassis 0010-07109-*xx*

This appendix explains each of the interface connections on the AirSpeed chassis 0010-07109-*xx*. The chassis identification label is on the bottom of the rear panel (near the SCSI connector). If your AirSpeed does not have a label in this location, see the documentation that came with the your AirSpeed chassis.

Chassis 0010-07109-xx Label Location



Although you do not need to connect your audio and video inputs and outputs for the initial setup, you do need an Ethernet connection to initially configure each AirSpeed.

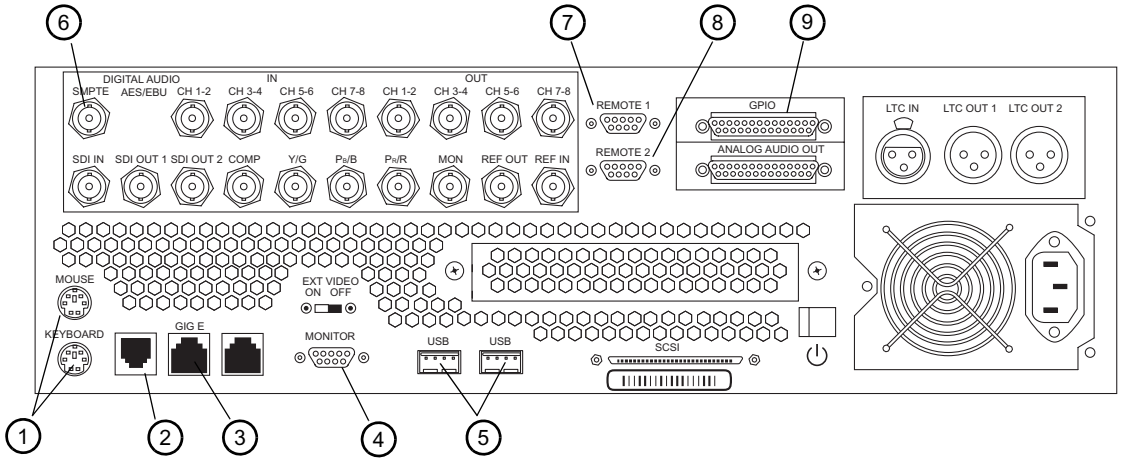
Do not connect more than one new AirSpeed to your Avid Unity environment until you have initially configured the AirSpeed with a unique IP address provided by your network administrator. The 0010-07109-xx chassis is shipped from Avid with a default IP and subnet address, see “Default IP Address” on page 56.

You initially configure your AirSpeed using the Ethernet port connected (GigE) on the rear of the AirSpeed. The GigE connector is identified in the “Control Connections” on page 136. For more information on the initial configuration, see “Configuring the AirSpeed” on page 75.

Control Connections

The following figure identifies the network, serial, PS/2, USB, and alarm connectors on the AirSpeed.

Serial, Ethernet, Monitor, and General Purpose Interface Connectors



For a description of each connector, see the following table.

AirSpeed Serial, Ethernet, and Timecode Identifiers

Number	Label	Function
1	KEYBOARD/MOUSE	Standard PS/2 compatible mouse and keyboard inputs, two 6-pin mini DIN connectors. The connectors are color coded; keyboard (purple) and mouse (green). An icon is located beside the connectors to also indicated the input device. The port can also be used with a trackball or other compatible pointing device.
2	SERIAL	Serial RJ-45 connection, used for manufacturing functions.
3	Gig E (Ethernet control interface)	1000BASE-T data port Ethernet connection to the Avid Unity network. Connects to a network switch and provides a fast link to the Avid Unity environment. Only the port identified in the figure is used to communicate with the Avid Unity MediaManager. The second ethernet port is, used for manufacturing functions.

AirSpeed Serial, Ethernet, and Timecode Identifiers (Continued)

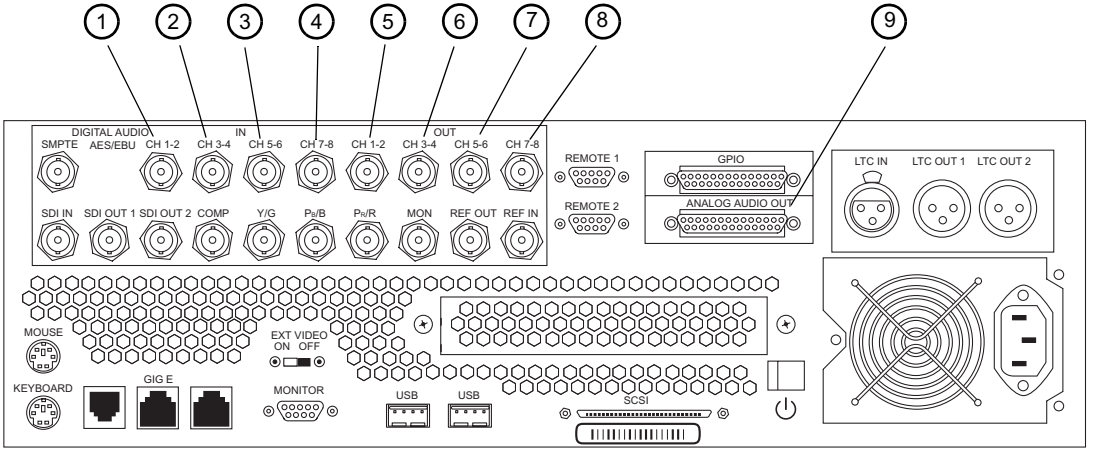
Number	Label	Function
		The Network status indicator in the AirSpeed UI is red if the Ethernet cable is plugged into the wrong port. For more information on the Network status indicator, see "Dashboard" on page 64.
4	MONITOR	Video graphic array (VGA) connection, provides an alternative display port. The EXT VIDEO switch above the Monitor connector redirects the video signal from the front display to the Monitor connector on the rear of the AirSpeed. This switch is removed on panelless AirSpeed models and the video signal is directed to the Monitor connector.
5	USB	Universal serial bus (USB) connections, used for manufacturing functions. The use of a USB keyboard or mouse is not supported on the USB connector.
6	SMPTE	SMPTE output provides a alarm signal (SMPTE 269M) if the AirSpeed is in an error condition, BNC connector. The alarm provides a logic *low going* closure output whenever a hardware fault exists in the system (including a failed drive or a detected fault in other circuitry).
7	REMOTE 1 (serial interface)	9-pin female RS-422 serial interface used for remote control to the AirSpeed.
8	REMOTE 2 (serial interface)	9-pin female RS-422 serial interface used for remote control to the AirSpeed.
9	GPIO	General purpose input/output for remotely controlling the AirSpeed, 25-pin DSUB connector. For example, you can invoke a GPI command to start capturing and one to stop capturing.

Audio Connections

The following figure identifies the audio connectors on the AirSpeed.

The audio and video analog outputs are intended for monitoring. If you want to integrate the media into analog devices, use professional digital-to-analog converters.

Audio Connectors



For a description of each connector, see the following table.

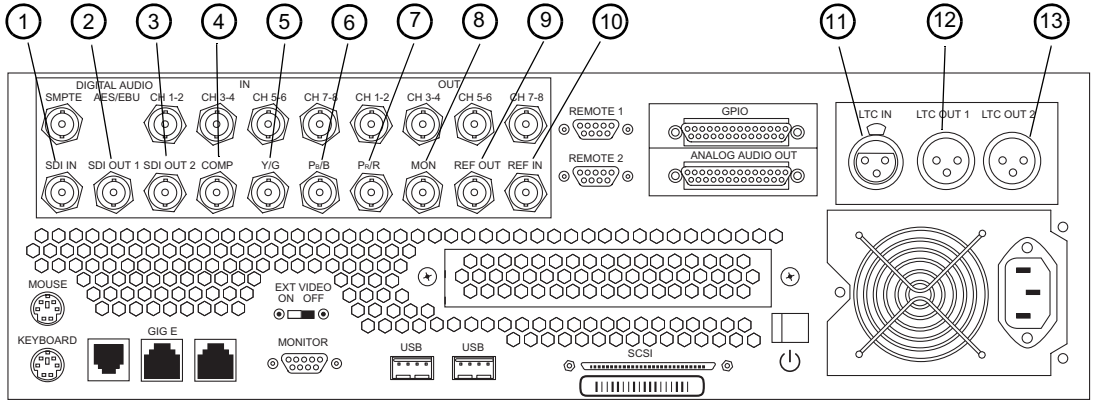
Audio Identifiers

Number	Label	Function
1	AES/EBU AUDIO IN CH 1–2	Digital AES/EBU audio input, BNC connector
2	AES/EBU AUDIO IN CH 3–4	Digital AES/EBU audio input, BNC connector
3	AES/EBU AUDIO IN CH 5–6	Digital AES/EBU audio input, BNC connector
4	AES/EBU AUDIO IN CH 7–8	Digital AES/EBU audio input, BNC connector
5	AES/EBU AUDIO OUT CH 1–2	Digital AES/EBU audio output (48 KHz 16/24 bit), BNC connector; signal source is software selectable.
6	AES/EBU AUDIO OUT CH 3–4	Digital AES/EBU audio output (48 KHz 16/24 bit), BNC connector; signal source is software selectable.
7	AES/EBU AUDIO OUT CH 5–6	Digital AES/EBU audio output (48 KHz 16/24 bit), BNC connector; signal source is software selectable.
8	AES/EBU AUDIO OUT CH 7–8	Digital AES/EBU audio output (48 KHz 16/24 bit), BNC connector; signal source is software selectable.
9	ANALOG OUT	Channels 1 - 8 Professional level audio output, 25-pin DSUB connector; a DB25 to XLR cable is provided. Signal source is software selectable.

Video/LTC Connections

The following figure identifies the video and timecode connectors on the AirSpeed.

Video Connectors



For a description of each connector, see the following table.

Video/LTC Identifiers

Number	Label	Function
1	SDI IN	Serial Digital Interface input, BNC connector.
2	SDI OUT1	Serial Digital Interface output number 1, BNC connector.
3	SDI OUT2	Serial Digital Interface output number 2, BNC connector.
4	COMP (composite)	Composite video output, BNC connector. Connects to analog video input of decks, monitors, or routers.
5	Y, ANALOG OUT (component)	Analog component video output, Y luma, BNC connector; connects to Y video input of decks.
6	P_B/B, ANALOG OUT (component)	Analog component video output, Pb color difference signal, BNC connector; connects to B-Y video input of decks.
7	P_R/R, ANALOG OUT (component)	Analog component video output, Pr color difference signal, BNC connector; connects to R-Y video input of decks.
8	MON (monitor)	Composite video output, BNC connector. Connects to analog video input of your optional external output monitor. Text overlay is displayed on this output.

Video/LTC Identifiers (Continued)

Number	Label	Function
9	REF OUT (reference output)	Video reference (REF) output sync signal for daisy-chaining the house sync to other media equipment, BNC connector.
		If the REF OUT signal is not used, A terminator must be attached to the REF OUT connector. If more than one device is connected, the last device in the REF chain must be terminated.
10	REF IN (reference input)	Video reference (REF) input for a black burst or house sync signal, BNC connector.
11	LTC IN	Longitudinal timecode input, female connector. Provides a feed to the AirSpeed server for an analog timecode signal, allowing an alternate source generated timecode to be applied to the captured material.
12	LTC OUT 1	Longitudinal timecode output, male connector. Analog timecode signal that can be used by external devices that require such a signal for their capture or command and control operations. The LTC input signal is present on the LTC Out 1 connector but, Avid does not recommend using the LTC Out 1 connector to daisy-chain the LTC signal. The LTC output signal is out of sync with the LTC input and should not be connected to other devices.
13	LTC OUT 2	Longitudinal timecode output, male connector. Analog timecode signal that can be used by external devices that require such a signal for their capture or command and control operations. The LTC Out 2 functionality has not been implemented.

Appendix B
Specifications

This appendix provides a detailed listing of all technical system specifications and connector pinouts. The following topics are discussed:

- Physical Specifications
- Audio Specifications
- Video Specifications
- Control and Synchronization Specifications
- Data Specifications
- Rear Panel Specifications
- Connector Pinouts

All specifications are subject to change without notice.

Physical Specifications

Physical Specifications

Parameter	Specification
Dimensions	inches: 19.00 (w) x 5.2 (h) x 27 (d) cm: 48.3 (w) x 13.2 (h) x 68.6 (d)
Rack Units	3
Weight	pounds: 54 kilograms: 24.3

Power and Environment Requirements

Parameter	Specification
Power	100 to 240 Vac, 50/60 Hz Auto Ranging, 470 Watts
Environmental	10°C to 35°C, 90% RH non-condensing

Audio Specifications

Audio Specifications

Parameter	Specification
Channels	8 Channels per Video Channel AES/EBU
Sampling	48 KHz, 16 or 24 bit precision, Balanced Differential
AC-3	Fully compatible with professional and consumer encoding
Audio Monitoring	8 Channels of Analog Out

Analog Audio Output Specifications

Parameter	Specification
Frequency Response	20 – 20 kHz. < 0.5 dB deviation
Dynamic Range	82 dB unweighted
THD plus Noise	78 dB unweighted at 0 dBFS
Inter-channel crosstalk	< 60 dB at 1 kHz
Inter-channel gain mismatch	< 0.5 dB
Output Impedance	300 ohm
Minimum Headphone Impedance	32 ohm
Maximum Headphone Output Level	18 dBu

Video Specifications

Video Specifications

Parameter	Specification
Video Channels	1 Receive or 2 Play Channels 525/625 selectable (SMPTE - 259M)
1 SDI Input, 2 SDI outputs	ITU-R BT.-601 10 bit Serial Digital Component Video
Video Input	1 SDI (serial digital interface — SMPTE 259M)
Video Outputs	2 SDI (serial digital interface — SMPTE 259M)
Video Monitoring	NTSC/PAL Composite Monitor Output, Clean Feed and Burned in TC
	YPrPb/GBR Component Monitor Out (selectable)
Video Compression	25 MB/s (4:1:1) DV and 50 MB/s (4:2:2) DV or IMX 50

Control and Synchronization Specifications

Control and Synchronization Specifications

Parameter	Specification
External Control	RS-422 control for each play using VDCP and Avid external Application Program Interface (API)
	8 GPI, 4 GPO (TTL Interface – Active low going signal see, “GPIO Connector Pin Assignments, Female” on page 147)
Manual Control	Graphical user interface provides basic Record, Play, trimming, locators, and configuration capabilities
Timecode	Linear Timecode SMPTE 12M Balanced I/O
	Vertical Interval Timecode, SMPTE 266 Compatible with Input and Output Line Selections
Reference	Analog black burst reference, looping input
Output timing	5 lines advance to 3 lines delay in 1/8th pixel steps
Internal Time	Derived from VITC on composite reference input

Control and Synchronization Specifications

Parameter	Specification
Closed Caption	All Closed Caption lines are preserved

Data Specifications

Data Specifications

Parameter	Specification
Keyboard/Mouse Port	6-Pin mini DIN connector, for PS/2 compatible keyboard and mouse
SMPTE Alarm	BNC connector, SMPTE 269M Contact Closure to ground (shell)
Ethernet Port	RJ-45 connector, 10BASE-T, 100BASE-T, or 1000BASE-T, auto sensing (only 1000BASE-T is qualified to use on AirSpeed for Avid Unity network inter-connections)

Rear Panel Specifications

Rear Panel Specifications

Parameter	Specification
Serial Remote 1	9-Pin female D connector, RS-422
Serial Remote 2	9-Pin female D connector, RS-422
GPIO Connector	25-Pin female D connector male
Analog I/O Connector	25-Pin female D connector female
LTC Timecode	In: 1 XLR female connector, Out: 2 XLR male connectors (The LTC Out functionality has not been implemented.)
AES/EBU Digital Audio	In: 4 BNC connectors, Out: 4 BNC connectors
Component Monitor Out	3 BNC connectors
Composite Monitor Out	1 BNC connector
SDI In	1 BNC connector
SDI Out	2 BNC connectors

Rear Panel Specifications

Parameter	Specification
Reference In	1 BNC connector
Reference Out	1 BNC connector
SMPTE Alarm	1 BNC connector

Connector Pinouts

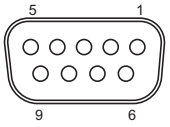
Thefollowing connectors are listed in this section:

- Remote 1 and Remote 2
- Ethernet Connector Specifications
- GPIO
- Analog Audio Monitor
- LTC Timecode
- Keyboard/Mouse

In order to ensure emission compliance, all cables attached to connectors on the AirSpeed chassis must be fully shielded and properly grounded to the connector shell where possible.

Remote 1 and Remote 2

The following table lists RS-422 specifications for the Remote 1 and Remote 2 female connectors on the rear panel.



RS-422 Remote 1 and Remote 2, Female

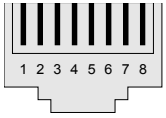
Pin #	Remote 1	Remote 2
1	Ground	Ground
2	Transmit data 1 (–)	Transmit data 2 (–)

RS-422 Remote 1 and Remote 2, Female

Pin #	Remote 1	Remote 2
3	Receive data 1 (+)	Receive data 2(+)
4	Ground	Ground
5	Ground	Ground
6	Ground	Ground
7	Transmit data 1 (+)	Transmit data 2 (+)
8	Receive data 1 (–)	Receive data 2 (–)
9	Ground	Ground

Ethernet Connector Specifications

The following table lists Ethernet connector (RJ-45) specifications on the chassis.



Ethernet Connector Specifications, Female

Pin #	Wire Color	Signal	Function
1	White-Orange	TD A+	Positive differential transmit
2	Orange	TD A–	Negative differential transmit
3	White-Green	RD B+	Positive differential receive
4	Blue	TD C+	Positive differential transmit
5	White-Blue	TD C–	Negative differential transmit
6	Green	RD B–	Negative differential receive
7	White-Brown	RD D+	Positive differential receive
8	Brown	RD D–	Negative differential receive

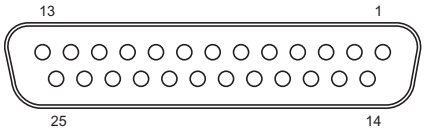
GPIO

The following table lists pin assignments for the 25-pin GPIO female connector on the AirSpeed chassis 0010-07109-*xx* rear panel. The GPIO connector on the AirSpeed chassis 0010-06715-xx rear panel requires the following adapter:

Avid part number: 0070-03231-01

When AirSpeed chassis 0010-06715-*xx* has the GPIO adapter attached, the pinouts match the 0010-07109-*xx* pinouts listed in the following table. Contact your Avid Representative about getting a GPIO adapter for the 0010-06715-*xx* chassis if you plan on using the GPIO connector.

The external connector and cable are customer supplied. A shielded cable must be used on this connector to maintain RFI compliance. The shield of the cable should be connected to the connector's shield or shell.



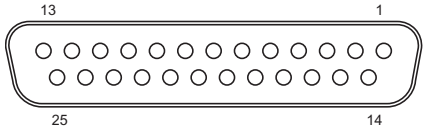
GPIO Connector Pin Assignments, Female

Pin #	Signal	Pin #	Signal	Pin #	Signal
1	Ground	10	Record Start	19	Ground
2	Record Tally	11	Record Stop	20	Play 1 Cue
3	Play 2 Tally	12	Play 2 Play	21	Play 1 Stop
4	N/C	13	N/C	22	N/C
5	N/C	14	Ground	23	N/C
6	Ground	15	Play 1 Tally	24	N/C
7	Play 1 Play	16	Server Ready	25	N/C
8	Play 2 Cue	17	N/C		
9	Play 2 Stop	18	N/C		

Analog Audio Monitor

The following table lists pin assignments for the 25-pin Analog Audio I/O female connector on the rear panel. Avid provides the cable with the AirSpeed.

In the following table, P indicates the positive signal, N indicates the negative signal and AA indicates analog audio.



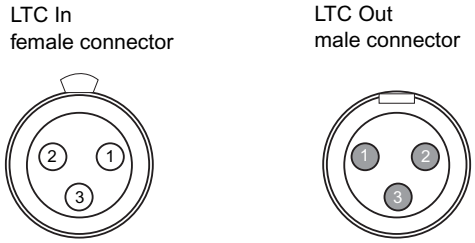
Analog Audio Connector Pin Assignments, Female

Pin #	Signal	Pin #	Signal	Pin #	Signal
1	AA OUT P8	10	AA OUT P2	19	Ground
2	Ground	11	Ground	20	AA OUT N4
3	AA OUT N7	12	AA OUT N1	21	AA OUT P3
4	AA OUT P6	13	N/C	22	Ground
5	Ground	14	AA OUT N8	23	AA OUT N2
6	AA OUT N5	15	AA OUT P7	24	AA OUT P1
7	AA OUT P4	16	Ground	25	Ground
8	Ground	17	AA OUT N6		
9	AA OUT N3	18	AA OUT P5		

LTC Timecode

The LTC In is an AC coupled differential input feeding a comparator which requires a minimum 100mV differential between the LTC+ and LTC-. Peak-Peak input levels can be anywhere between 300 mV and 5.3V. The following table lists LTC specifications on the rear panel.

The LTC Out functionality has not been implemented.



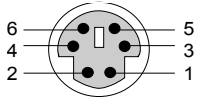
LTC Timecode Input Connector Specifications, XLR Female

Pin #	Signal	Function
1	GND	Ground
2	+ Line	Positive differential signal
3	– Line	Negative differential signal

Shielded cable must be used on each connection to maintain RFI compliance. Connect the shield of the cable to the shield of the connector.

Keyboard/Mouse

The following table lists keyboard and mouse connector specifications.



Mouse Connector Specifications (Mini DIN)

Pin #	Signal	Function
1	Data	Keyboard data
2	Data	Mouse data
3	GND	Ground
4	+5 Volts	Fused VCC
5	Clock	Keyboard clock
6	Clock	Mouse clock

Appendix C

Regulatory and Safety Notices

Warnings and Cautions

Never install equipment if it appears damaged.

Disconnect the power cord before servicing unit.

Only perform the services explicitly described in this document. For services or procedures not outlined in this document, speak with authorized Avid service personnel.

Follow all warnings and cautions in the procedures.

Operate the device within its marked electrical ratings and product usage instructions.

There is a risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the manufacturer's instructions.

FCC Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed in accordance with the instruction manual, may cause harmful

interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian ICES-003

This Class A digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union Notice

Declaration of Conformity
(According to ISO/IEC Guide 22 and EN 45014)

Application of Council Directives:	73/23/EEC, 89/336/EEC.
Standards to which Conformity is Declared:	EN60950:1999 Third Edition CISPR 22:1997 / EN55022:1994 + A1:1995 + A2:1997 Class A EN55024:1998/EN61000 — 3-2, 4-2, 4-3, 4-4, 4-5, 4-6, 4-11
Manufacturer's Name:	Avid Technology, Inc. 1925 Andover Street Tewksbury, MA 01876, USA
European Contact:	Nearest Avid Sales and Service Office or Avid Technology International B.V. Sandyford Business Center Unit 3, Dublin 18, Ireland
Type of Equipment:	Information Technology Equipment

Product Name:	Products for the Windows NT, Windows 2000, or Windows XP Operating System: Avid Adrenaline DNA, Avid DS Nitris DNA, Avid Equinox Break-Out-Box, Avid|DS, Avid Xpress, Avid Xpress DV, Film Composer, Media Composer, MediaDock, MediaDock 2+, MediaDrive, MediaRAID, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, Meridien I/O box, NewsCutter, NewsCutter DV, NewsCutter XP, Pro Tools AVoption|V10, Symphony Products for the Mac OS X Operating System: Avid Adrenaline DNA, Avid Xpress, Avid Xpress DV, Film Composer, Media Composer, MediaDock, MediaDock 2+, MediaDrive, MediaRAID, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, Meridien I/O box, Pro Tools AVoption|V10, Symphony Products for the UNIX Operating System: AirPlay, AirSPACE, AirSpeed, DNxchange, VideoSPACE Products for MediaNetwork and Workgroups: Avid ProEncode, Avid Unity ISIS, Avid Unity MediaManager, Avid Unity MediaNetwork (includes File Manager), Avid Unity TransferManager, LANserver, LANserver EX, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, MEDIArray ZX, MEDIArray ZX Drive, Nearchive, PortServer, Vixel switches (8100, 7100, 7200, 9100, 9200), Xdeck
Base Model Numbers:	None
Product Options:	All
Year of Manufacture:	2006

(1) Products for the Windows NT, Windows 2000, or Windows XP Operating System: products were tested in a typical Avid Adrenaline DNA, Avid DS Nitris DNA, Avid Equinox Break-Out-Box, Avid|DS, Avid Xpress, Avid Xpress DV, Film Composer, Media Composer, MediaDock, MediaDock 2+, MediaDrive, MediaRAID, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, Meridien I/O box, NewsCutter, NewsCutter DV, NewsCutter XP, Pro Tools AVoption|V10, or Symphony configuration.

(2) Products for the Mac OS X Operating System: products were tested in a typical Avid Adrenaline DNA, Avid Xpress, Avid Xpress DV, Film Composer, Media Composer, MediaDock, MediaDock 2+, MediaDrive, MediaRAID, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, Meridien I/O box, Pro Tools AVoption|V10, or Symphony configuration.

(3) Products for the UNIX Operating System: products were tested in an AirPlay, AirSpeed, DNxchange, or VideoSPACE configuration.

(4) Products for MediaNetwork and Workgroups: products were tested in a typical Avid ProEncode, Avid Unity ISIS, Avid Unity MediaManager, Avid Unity MediaNetwork (includes File Manager), Avid Unity TransferManager, LANserver, LANserver EX, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, MEDIArray ZX, MEDIArray ZX Drive, Nearchive, PortServer, or Xdeck configuration.

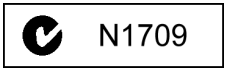
I, the undersigned, hereby declare that the equipment specified above conforms to the above Directives and Standards.

George R. Smith, Director of Hardware Engineering

Disposal of Waste Equipment by Users in the European Union

This symbol on the product or its packaging indicates that this product must not be disposed of with other waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city recycling office or the dealer from whom you purchased the product.

Australia and New Zealand EMC Regulations



John Kells, Australian Operations Manager
Avid Technology (Australia)
Unit B
5 Skyline Place
French Forest NSW 2086
Australia
Phone: 61-2-8977-4800

Taiwan EMC Regulations

Taiwan EMC Regulations BSMI Class A EMC Warning

警告使用者:
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

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